

2. *The Fresh-water Entomostraca of the Cape Province (Union of South Africa).*—By G. O. SARS. Part II: Ostracoda.

(With Plates II–XX.)

INTRODUCTION.

THE present paper is the second of a series of treatises which I have intended to publish about the fresh-water Entomostraca of the southernmost part of Africa occupied by the Cape Province.\* (The first part of this series has been published in vol. xv, pt. 4, of these Annals, 1916, and was wholly devoted to the *Cladocera*.) In the present part another very different group of Crustacea, viz. the *Ostracoda*,† will be dealt with.

The fresh-water Ostracoda of the African continent have been formerly studied by several distinguished zoologists: Baird, Brady, Vávra, G. W. Müller, and Daday; but the species recorded by those authors have been for the most part derived from regions outside the limits of the Cape Province, chiefly from the equatorial parts of the continent. I have, however, myself published two papers relating to the Ostracod Fauna of that region. One of these papers, issued in 1895, contains descriptions and figures of several Entomostraca, among them also some Ostracoda, all of them raised from dried mud taken from a swamp at Knysna. In the other paper, published in 1898, only a single Ostracod (*Megalocypris princeps*), derived from the neighbourhood of Cape Town, is dealt with; this Ostracod being distinguished by its truly gigantic size, as compared with the other known forms of this order.

The additional material received has partly been specified in the first part of the present account, and consists both of parcels of dried mud and of alcoholic samples. From all the parcels of mud, Ostracoda have been reared, often in great numbers, and most of the alcoholic samples also contained, in addition to Cladocera and Copepoda, a larger or smaller number of Ostracoda.

The number of species thereby observed is rather great, amounting

\* One species from the Transvaal is also included.—[Ed.]

† The change of this name to *Ostrapoda*, as proposed by the Rev. T. R. R. Stebbing, cannot, I think, be sanctioned.

to no less than seventy-three in all. Most of them have been successfully reared in my aquaria, and I have thereby been enabled to examine the specimens in the fresh and living state, to ascertain the characteristic colours, and to watch their growth and behaviour during several successive generations.

As a rule, at the close of each season the bottom-residue of my aquaria has been carefully kept in a dried condition until the next season, when it again has been placed in suitably prepared aquaria, and the Ostracoda have never failed to reappear, often in great abundance, developing from the resting ova deposited in the mud during the previous season. My investigations have thus been continued during the course of several successive years, and renewed observations of the species made, to verify and complete those at first instituted.

The great tenacity of life exhibited by the resting ova is very remarkable. In the year 1909 I received from the late Dr. Purcell a considerable lot of dried mud taken by him from an old brick-pond near his residence at Bergvliet, Cape Peninsula. Of this mud some quantity is still left in its original dried condition, and I have also during the present season employed a part of it for preparing some small aquaria. In all of them some Ostracoda (of the genus *Cypridopsis*) have made their appearance, being accordingly developed from ova, which have remained dry during a period of no less than twelve years. It is my purpose to keep the rest of the mud for further experiments during the coming seasons.

The species described in the present paper are referable to two distinct families, viz. the *Cypridae* and the *Cytheridae*. Of the latter family, however, only two species have as yet come under my notice; all the other species belong to the extensive family *Cypridae*. For the discrimination of the several genera comprised within this family, the most reliable characters are to be derived from the structure of the shell, and more particularly from the mutual relation of the two valves. The several appendages exhibit on the whole a very uniform structure throughout this family; but some characters of apparently generic value may also be found, especially as regards the shape of the maxillary palp and the caudal rami.

As to the plates accompanying the present paper, I have been anxious to make the chief figures (animal seen laterally and dorsally) as perfect as possible. It will be found that several recent students of this group content themselves by giving only rough outline-figures of the shell; but such figures, I believe, must be regarded as quite

insufficient. For the ready recognition of the species more carefully executed figures, if possible drawn from fresh and still living specimens, would be highly desirable.

## FAM. CYPRIDAE.

*Remarks.*—I am well aware that the name *Cyprididae*, employed by several authors, is grammatically a more correct derivation of *Cypris* than is *Cypridae*. The latter name is, however, in reality that proposed at the earliest date, viz. in 1850 by Baird, and it has also been retained by some of the more distinguished recent authors, for instance, by G. W. Müller and G. Alm. There are, moreover, some practical reasons which seem to make it more desirable to retain the originally proposed name. For if this name is changed in the above-mentioned manner, of course the names of the several subfamilies proposed by recent authors ought also to be changed according to the same law. But such a change would render most of these names inconveniently polysyllabic, and would, moreover, lead to severe confusion with the very different group of Ostracoda, for which the genus *Cypridina* M. Dow is the type.

As still some dissent seems to exist about the number and exact limitation of these subfamilies, I have found it right in the present paper to abstain from any subdivision of the family, and I will only here note, that two of the genera treated of in the following pages, viz. *Cypria* and *Ilyocypris*, have usually been removed each to separate subfamilies.

### GEN. 1. EUCYPRIS, Vávra, 1891.

*Remarks.*—This genus is here taken in a more restricted sense than done by Vávra and most other authors. As the type of the genus may be considered *Cypris virens* of Jurine, with which several other species agree very closely, both as to the shell and the structure of the several appendages. The genus is readily distinguished from *Cypris* (proper), the type of which is *C. pubera* O. F. Müller, by the nearly equal valves and their want of any marginal armature. All the known species of this genus seem to be exclusively parthenogenetical, no male specimens having been ever observed in any of them. Seven species of this genus will be described in the following pages.

## 1. EUCYPRIS TRICHOTA (G. W. Müller).

(Plate II, figs. 1-11.)

*Cypris trichota*, G. W. Müller. Deutsche Südpolar Expedition, Die Ostracoden, vol. x, p. 152, figs. 1-5 (in text).

*Specific Characters*.—Shell moderately tumid; seen laterally, rounded oval or somewhat trigonal in outline, greatest height a little in front of the middle and about equalling  $\frac{3}{5}$  of the length; dorsal margin boldly arched and forming just behind the ocular region a conspicuous angular bend, ventral margin very slightly sinuated in the middle, anterior extremity somewhat broader than the posterior, which is obtusely rounded, with the greatest curvature a little above the median axis; seen dorsally, ovate, with the greatest width about in the middle and slightly exceeding half the length, anterior extremity more narrowed than the posterior. Surface of shell smooth, with only small scattered pits, and clothed with comparatively short and delicate hairs more conspicuous at both extremities. Structure of the several appendages very like that in the type species.

Colour not yet ascertained.

Length of shell attaining 3 mm.

*Remarks*.—I think I am right in identifying the above-described form with that recorded by G. W. Müller, though some small differences may be found on comparing the figures here given with those in Müller's work. It is much the largest of the seven species here described, and indeed one of the largest known Ostracods, being in this respect only superseded by the two big species of the genus *Megalocypris*; to be described further below. On the accompanying plate carefully drawn figures of all the appendages in the present species are given for comparison with those in the other genera treated of in this paper.

*Occurrence*.—Some few specimens of this large Ostracod were contained in a sample taken September 1897 by the late Dr. Purcell from a pond on Green Point Common, near Cape Town. The specimens examined by G. W. Müller were derived from a vley at Plumstead.

## 2. EUCYPRIS PURCELLI, n. sp.

(Plate II, figs. 12-15.)

*Specific Characters*.—Shell comparatively more tumid than in the preceding species; seen laterally, of a rather regular oval reniform shape, greatest height about in the middle and only slightly exceeding half the length, dorsal margin quite evenly arched throughout, ventral



margins distinctly sinuated in the middle, both extremities rounded off, the posterior one having the greatest curvature somewhat below the median axis; seen dorsally, broadly oval in form, with the greatest width considerably exceeding half the length and about equalling the height, anterior extremity somewhat more pointed than the posterior. Surface of shell, as in the preceding species, nearly smooth and clothed with comparatively short and delicate hairs. Structure of the several appendages scarcely different from that in the preceding species.

Colour not yet ascertained.

Length of shell scarcely exceeding 2.30 mm.

*Remarks.*—The present species may be easily distinguished from the preceding one by the rather different shape of the shell, as also by its inferior size. Fig. 14 on the accompanying plate is given to show the natural position of the several appendages, and fig. 15 to show the inner duplicatures of the shell.

*Occurrence.*—Several specimens of this form were contained in an alcoholic sample taken by Dr. Purcell, August 26th, 1900, from a pond at Ashton, Robertson Division. Neither this nor the preceding species have been reared in my aquaria.

### 3. *EUCYPRIS PRODUCTA*, n. sp.

(Plate III, figs. 1 and 2.)

*Specific Characters.*—Shell moderately tumid; seen laterally, oblong oval in outline, greatest height only slightly exceeding half the length and occurring about in the middle, dorsal margin somewhat irregularly curved, with a slight indication of angle both in the middle and behind, ventral margin distinctly sinuated, both extremities somewhat produced, the anterior one obtusely rounded at the end and broader than the posterior, which appears somewhat obliquely deflexed, with the greatest curvature considerably below the median axis; seen dorsally, oval fusiform in outline, with the greatest width in the middle and nearly equalling the height. Sculpture of shell and structure of the several appendages about as in the two preceding species.

Colour pale greenish, with a rather broad marginal zone of a lighter hue in front, and with a very conspicuous dark stripe on each side running obliquely backwards from the centre of the shell, just above the caecal tubes of the intestine.

Length of shell amounting to 2.40 mm.

*Remarks.*—In its general appearance this form bears some resem-

blance to the European species, *E. virens*. It is, however, of larger size and has the shell more elongate, both extremities being considerably more produced, a character which has given rise to the specific name here proposed.

*Occurrence*.—Some few specimens of this form were reared\* in one of my aquaria prepared with mud kindly forwarded to me in the year 1900 by Mr. Hodgson, and derived from a vley near Port Elizabeth.

#### 4. EUCYPRIS CORPULENTA, G. O. Sars.

(Plate III, figs. 3 and 4.)

*Cypris corpulenta*, G. O. Sars. On some South African Entomostraca raised from dried mud. Chr. Vid. Selsk. Skrifter, 1895, p. 30, pl. v, fig. 2, a-c.

*Specific Characters*.—Shell very tumid; seen laterally, of a somewhat irregular rounded oval form, greatest height about in the middle and equalling  $\frac{2}{3}$  of the length, dorsal margin rather evenly arched, ventral margin very slightly sinuated in the middle, anterior extremity obliquely rounded and scarcely as broad as the posterior, which is obtusely blunted, with the greatest curvature about in the median axis; seen dorsally, broadly oval in outline, with the greatest width about in the middle and fully attaining the height, anterior extremity more pointed than the posterior. Surface of shell rather densely hairy, the hairs being, as usual, more conspicuous at both extremities.

Colour yellowish-brown changing to olivaceous, and clouded dorsally with dark green.

Length of shell amounting to 2.10 mm.

*Remarks*.—This species was described and figured by the present author in the year 1895, and has more recently also been recorded by G. W. Müller. I am, however, by no means assured that the form so named by him is in reality referable to the present species, as the shape of the shell, to judge from the figures given by that author, appears somewhat different, and also the size is far inferior.

*Occurrence*.—The specimens originally examined by the present author were raised from mud taken at Knysna. I have not obtained this species from any other locality.

#### 5. EUCYPRIS HIRTA, n. sp.

(Plate III, figs. 5 and 6.)

*Specific Characters*.—Shell moderately tumid; seen laterally, suboval in outline, greatest height scarcely attaining  $\frac{2}{3}$  of the length

and occurring about in the middle, dorsal margin gently arched, ventral margin distinctly sinuated, both extremities bluntly rounded and nearly equal; seen dorsally, regularly ovate, with the greatest width in the middle and scarcely attaining the height, anterior extremity more pointed than the posterior. Surface of shell sculptured with rather closely set pits, and all over clothed with unusually coarse curved hairs, giving the shell a pronouncedly hirsute appearance.

Colour yellowish grey, with a more or less distinct greenish tinge dorsally, and an orange shadow in front.

Length of shell amounting to 1.90 mm.

*Remarks.*—The present form is chiefly characterised by the unusually strong development of the hairs clothing the shell, a character which indeed has given rise to the specific name here proposed. Otherwise it approached closely to *E. corpulenta*.

*Occurrence.*—Some specimens of this form, one of which is drawn on the accompanying plate, were found in the same sample in which *E. trichota* occurred (Green Point Common). Moreover, a number of specimens, apparently referable to the same species, though of somewhat smaller size, were reared in one of my aquaria prepared with mud from the neighbourhood of Bergvliet.

#### 6. EUCYPRIS TRIGONA, G. O. Sars.

(Plate III, figs. 7 and 8.)

*Cypris trigona*, G. O. Sars. L.c. p. 32, pl. v, fig. 3, a-c.

*Specific Characters.*—Shell moderately tumid; seen laterally, of a pronouncedly trigonal shape, greatest height fully attaining  $\frac{2}{3}$  of the length and occurring in the middle, dorsal margin boldly arched, being almost angularly bent in the middle and declining steeply to each extremity, ventral margin nearly straight, both extremities obliquely rounded and nearly equal; seen dorsally, regularly ovate, with the greatest width in the middle and not nearly attaining the height, anterior extremity more pointed than the posterior. Surface of shell nearly smooth and clothed with comparatively short and delicate hairs.

Colour pale greenish, clouded dorsally with irregular darker shadows, and exhibiting anteriorly a rather broad lighter marginal zone partly continued along the lower face.

Length of shell amounting to 1.75 mm.

*Remarks.*—This form was described by the present author at the same time as *E. corpulenta*, but has not been observed by me sub-

sequently. It is easily recognised from the other known species by the high, pronouncedly trigonal shell.

*Occurrence*.—Only two or three specimens of this form have hitherto come under my notice. They were found in one of my aquaria prepared with mud from the Knysna swamp.

#### 7. EUCYPRIS CAPENSIS (G. W. Müller).

(Plate III, figs. 9 and 10.)

*Cypris capensis*, G. W. Müller. L.c. p. 153, figs. 1-6 (in text).

*Specific Characters*.—Shell very tumid; seen laterally, oblong reniform in outline, greatest height only slightly exceeding half the length and occurring rather in front of the middle, dorsal margin abruptly bent behind the ocular region and nearly straight in the middle, though obliquely declining, ventral margin deeply sinuated in the middle, both extremities somewhat deflexed and rounded off, the anterior one conspicuously broader than the posterior; seen dorsally, exceedingly broad and expanded, greatest width even considerably exceeding the height, anterior extremity narrowly produced, posterior obtuse. Surface of shell sculptured with rather densely set pits, and finely hairy at both extremities. Anterior legs with the penultimate and antepenultimate joints coalesced.

Colour not yet ascertained.

Length of shell amounting to 1.80 mm.

*Remarks*.—I cannot doubt that the above-described form is identical with that recorded by G. W. Müller, though the lateral aspect of the shell, as given by that author, appears somewhat shorter and stouter than in the specimens examined by me. In all other respects, however, I find the accordance quite complete.

*Occurrence*.—Some few specimens of this very distinct species were found in a sample taken by Dr. Purcell from a pond on Green Point Common. The specimens examined by G. W. Müller were derived from the same locality as *E. trichota*.

#### GEN. 2. PSEUDOCYPRIS, Daday, 1910.

*Generic Characters*.—Shell provided on each side of the ventral face with a projecting thin lamellar expansion encompassing, like a frame, its central part; dorsal face roof-like vaulted, ventral face flattened. Valves subequal, with the inner duplicatures not particularly broad. Natatory setae on the posterior antennae well developed.



Maxillary palp with the terminal joint narrow, cylindrical in form. Anterior legs with the penultimate and antepenultimate joints confluent. Caudal rami comparatively less slender than in *Eucypris*. Spermatie tubes in male forming dense coils both in the anterior and posterior parts of the valves.

*Remarks.*—This genus was proposed in the year 1910 by Daday to include a species (*P. Bouvieri*), observed by him in both sexes, and derived from the equatorial part of Africa. The most reliable distinguishing characters of this genus are to be derived from the shell, the appearance of which is indeed highly remarkable. The several appendages, on the other hand, do not exhibit any pronounced difference in their structure from those in the genus *Cypris* and *Eucypris*. The character on which Daday has laid most stress in establishing this genus, is the relation of the spermatie tubes in the male. As, however, as yet no males have been examined of any species either of *Eucypris* or *Cypris* proper, and accordingly the relation of the spermatie tubes in these genera is still unknown, the above-mentioned character cannot properly be utilised for the distinction of the present genus (see Addendum, p. 177).

8. PSEUDOCYPRIS TESTUDO, n. sp.

(Plate III, figs. 11–17.)

*Specific Characters*.—*Female*.—Shell pronouncedly clypeate in shape, owing to the projecting lamellar expansion surrounding its ventral face; seen laterally, oblong triangular in outline, greatest height not nearly attaining half the length and occurring in front of the middle; dorsal margin evenly arched in front, sloping obliquely behind, and joining the posterior margin by a slight angular bend; ventral margin almost straight, without any obvious sinus in the middle; anterior extremity much broader than the posterior, and obliquely rounded, terminating below in a well-marked angular corner, posterior extremity rather produced and obtusely acuminate; seen dorsally, very broad, elliptical in outline, with the greatest width about equaling  $\frac{4}{5}$  of the length and nearly twice the height, lateral edges evenly curved throughout. Surface of shell smooth, with only small and scattered pits, and rather sparingly clothed with delicate hairs.

Colour not yet ascertained.

Length of shell amounting to 2.40 mm.

*Remarks.*—The above-described peculiar Ostracod is evidently congeneric with the form examined by Daday, but is specifically

well distinguished by some rather conspicuous differences as to the shape and sculpture of the shell. It is also of much larger size.

*Occurrence*.—Some few female specimens of this remarkable form, chiefly detached valves, were found in the same sample in which *Eucypris capensis* occurred (Green Point Common). On the accompanying plate, in addition to the figures of the shell, some of the limbs have been drawn to show their close resemblance to those in *Eucypris* (see also Addendum, p. 179).

### GEN. 3. LIOCYPRIS, n.

*Generic Characters*.—Shell compressed, smooth, higher behind than in front, with the valves thin and pellucid, subequal; inner duplication of anterior extremity very broad. Posterior antennae slender, with the natatory setae much reduced. Maxillae with the terminal joint of the palp scarcely longer than broad; masticatory lobes not much prolonged. Maxillipeds with the palps unusually large, lamellar, in female simple, in male, as usual, prehensile and very unequally developed. Anterior legs comparatively slender, with the penultimate and antepenultimate joints well defined. Caudal rami slender, linear. Genital lobes of female provided both in front and behind with a peculiar soft digitiform appendage. Copulative appendages of male large, lamelliform, without any distinctly marked chitinous ducts, and only slightly bilobular at the extremity. Ejaculatory tubes apparently absent.

*Remarks*.—This new genus is established to include a large Ostracod, which I am unable to refer to any of the hitherto known genera, exhibiting, as it does, some rather extraneous characters, especially as regards the male sex. The genus to which it shows the nearest relationship is perhaps *Homocypris* G. O. Sars.

#### 9. LIOCYPRIS GRANDIS, n. sp.

(Plate XVIII, figs. 5-16.)

*Specific Characters—Female*.—Shell, seen laterally, oblong sub-reniform in outline, greatest height (in adult specimens) rather behind the middle and about equalling half the length, dorsal margin rather strongly arched in its posterior part, declining slowly in front, much more steeply behind, ventral margin almost straight, anterior extremity evenly rounded, posterior obliquely deflexed and terminating below in an obtuse corner; seen dorsally, narrow fusiform in

outline, with the greatest width only slightly exceeding  $\frac{1}{3}$  of the length, both extremities obtusely pointed. Valves perfectly equal, thin and pellucid, without any obvious sculpture and finely hairy in front and behind, some of the hairs of the posterior extremity rather produced; inner duplicatures broad in front, narrow behind. Posterior antennae with the penultimate joint rather narrow and shorter than the antepenultimate one; apical claws not much elongated; natatory setae very much reduced, nearly obsolete. Maxillipeds unusually largely developed, though having the branchial plate comparatively small. Caudal rami very slender, almost straight; apical claws thin and somewhat unequal, the larger one scarcely exceeding half the length of the ramus.

*Male* of about same size as female and resembling it in the shape of the shell. Prehensile palp of right maxilliped with the dactylus very broad and quite lamellar, produced at the end to a narrow straight lappet; that of left palp with the dactylus more normally developed and abruptly bent at the base. Copulative appendages oblong oval in shape, and slightly cleft at the end, with the inner lobe obtuse, the outer narrow falciform.

Colour not yet ascertained.

Length of adult female reaching 4.40 mm.

*Remarks.*—In the lateral aspect this form exhibits a certain resemblance to a *Candona*, and indeed in habits it may also agree with the species of that genus, the animal being apparently quite devoid of swimming power. But an examination of the several appendages proves it at once to be very different. It is one of the largest Ostracoda known, and is in this respect only superseded by some of the species of the genus *Megalocypris*.

*Occurrence.*—Several specimens of this remarkable form, both adult and young ones, were collected by the late Dr. F. Purcell at Stompneus, Cape Province. Among the specimens a single fully adult male was present, with well-developed spermatocysts, but with the shell somewhat crushed. The appendages of the specimen were, however, sufficiently well preserved to allow a complete examination, which revealed some rather perplexing peculiarities, especially as regards the structure of the copulative apparatus.

#### GEN. 4. HETEROCYPRIS, Claus, 1892.

*Remarks.*—This genus was proposed in the year 1892 by Claus to include the well-known European species *Cypris incongruens*

Ramdohr, but has been rejected by most recent authors (also by myself), and identified with the genus *Cyprinotus* established at a somewhat earlier date by Brady. I am, however, now of opinion that these two genera, though closely related, ought to be kept apart, as they each comprise a number of species agreeing pretty well with each other. In all the known species of the present genus the shell exhibits a more or less bright yellow or orange colour, and they may indeed thereby, when examined in the living state, easily be recognised from the species of the genus *Cyprinotus*, and also from most other Ostracoda. Three species of the present genus will be described in the following pages, as members of the Fauna of the Cape Province.

#### 10. HETEROCYPRIS INCONGRUENS (Ramdohr).

(Plate IV, figs. 1 and 2.)

*Cypris incongruens*, Ramdohr. Magaz. d. Gesellsch. naturf. Freunde in Berlin II, p. 86, pl. iii, figs. 1-12, 15, 16, 18-20.

*Specific Characters*—*Female*.—Shell, seen laterally, irregularly ovate in outline and somewhat narrowed in front, greatest height exceeding half the length and occurring about in the middle, dorsal margin rather boldly arched and joining. The anterior and posterior edges without any intercrossing angle, ventral margin nearly straight, anterior extremity considerably narrower than the posterior, the latter obtusely rounded, with the greatest curvature about in the median axis of the shell; seen dorsally, oblong ovate, with the greatest width not merely attaining half the length and occurring somewhat behind the middle, anterior extremity more narrowed than the posterior. Valves, as in the other species of the present genus, conspicuously unequal, though less so than in the two succeeding species, right valve the smaller and distinctly overlapped in front by the left, exhibiting, moreover, the usual armature of closely set marginal tubercles easily observable both in front and behind. Surface of shell smooth and polished, being clothed in front and behind with very small and delicate hairs.

Colour more or less bright yellow, changing on the dorsal face to orange, on account of the translucent ripe ova, caecal tubes of the intestine not very conspicuous.

Length of shell amounting to 1.45 mm.

*Remarks*.—The present species was described as early as the year 1808 by Ramdohr, and has subsequently been examined by numerous



authors. It seems indeed to be a cosmopolitan species, having been recorded from almost all parts of the world, though in some cases it has perhaps been confounded with other nearly allied species.

*Occurrence.*—This Ostracod developed in great abundance in some of my aquaria prepared with mud taken by Dr. Purcell from a small grassy vley on the Cape Flats. Some alcoholic specimens have also been forwarded to me from the South African Museum, and these I have carefully compared with Norwegian specimens, without detecting any difference whatever. The male of this species has been described by Vávra. It seems to be extremely rare, and indeed I have myself never found any male among the numerous specimens examined. The present species seems accordingly as a rule to propagate in a parthenogenetical manner, like the species of the genera *Eucypris* and *Cypris* proper.

11. *HETEROCYPRIS AUREA*, G. O. Sars.

(Plate IV, figs. 3 and 4.)

*Cypris aurea*, G. O. Sars. L.c. p. 34, pl. v, fig. 4, a-c.

*Specific Characters—Female.*—Shell, seen laterally, subovate in outline, with the greatest height a little behind the middle, dorsal margin sloping gently in front and forming behind a bold and even curve, ventral margin without any obvious sinus, being even somewhat convex in its posterior part, anterior extremity obliquely rounded, posterior rather broad and blunted at the end, with a somewhat projecting rounded lappet below; seen dorsally, oblong cuneiform, gradually tapered in front to a slightly twisted rostral projection. Valves rather more unequal than in the type species, the left one considerably overlapping the right anteriorly, marginal tubercles of the latter well marked. Surface of shell smooth and clothed at each extremity with delicate hairs.

*Male* smaller than female, and on the whole resembling in appearance that of the succeeding species (see fig. 8).

Colour of female beautiful golden yellow, with a dark patch across the back, and the caecal tubes of the intestine likewise very dark coloured; ripe ova shining through the shell with a bright reddish-orange hue.

Length of the shell in female attaining 1.50 mm., that of male 1.30 mm.

*Remarks.*—This form was described by the present author in 1894, and its differences from the type species pointed out. The figures

given of both these species on the accompanying plate will still more clearly show these differences, as regards the shape of the shell.

*Occurrence*.—The specimens originally examined were raised from mud taken from the Knysna swamp, and this species has also been recorded by Daday (1913) from Kamaggas, Little Namaqualand. Most of the specimens were of the female sex; but among them also some male specimens occurred, one of which has been figured in the above-quoted Journal, together with some details.

## 12. HETEROCYPRIS CAPENSIS (G. W. Müller).

(Plate IV, figs. 5–20.)

*Cyprinotus capensis*, G. W. Müller. L.c. p. 162, figs. 1–6 (in text).

*Specific Characters*.—*Female*.—Shell, seen laterally, oval reniform in outline, greatest height somewhat in front of the middle, dorsal margin only slightly arched in the middle and joining both the anterior and posterior edges by an abrupt bend, ventral margin conspicuously sinuated in the middle, anterior extremity obliquely rounded and somewhat broader than the posterior, which terminates below in a somewhat projecting corner; seen dorsally, cuneiform in outline, with the anterior extremity narrowly produced and terminating in a beak-like prominence twisted to the right side. Valves very unequal, much more so than in any of the other known species, left valve projecting considerably beyond the right in front, marginal tubercles of the latter very conspicuous. Surface of shell smooth and clothed at both extremities with delicate hairs. Structure of the several appendages scarcely differing from that in the type species.

*Male* of smaller size than female, and easily recognisable by the densely crowded spermathecae shining through the valves in their posterior part. Shape of the shell slightly different, being comparatively shorter and stouter, with the ventral sinus less deep.

Colour of female pale yellow, more or less tinged dorsally with orange, owing to the translucent ripe ova.

Length of shell attaining in female 1.40 mm., in male 1.20 mm.

*Remarks*.—The above-described form is unquestionably identical with that recorded by G. W. Müller, though the remarkable inequality of the valves does not appear sufficiently from the figures given by that author. As to the specific name proposed by G. W. Müller, I find it somewhat objectionable, as this name had been given by the same author to a species of the nearly allied genus *Eucypris* (see above), and as, moreover, at a much earlier date, another Ostracod (*Cypria*

*capensis* G. O. Sars) had been named in a similar manner. Before knowing the work of G. W. Müller, I had noted this species under the provisional name *H. loxolabris*.

On the accompanying plate, figures of the several appendages in the present species are given for comparison with those in the other genera here treated of.

*Occurrence*.—This form developed rather abundantly in some of my aquaria prepared with mud taken by Dr. Purcell from old gravel-pits on the Bergvliet Flats. It was also reared from mud taken by Mr. Orjan Olsen in the year 1913 from small dried-up ponds near the whaling station at Saldanha Bay. Moreover, specimens of the same species were found in some of the alcoholic samples sent to me from the South African Museum, and taken in the neighbourhood of Cape Town.

#### GEN. 5. HOMOCYPRIS, n.

*Generic Characters*.—Shell moderately tumid, smooth, elongate, with both extremities conspicuously produced. Valves perfectly equal and without any armature, except the usual delicate coating of hairs; inner duplicatures remarkably broad, especially that of the anterior extremity. Natatory setae of the antennae less perfectly developed than in *Heterocypris*. Maxillary palp with the terminal joints narrow cylindric. Caudal rami of moderate size and armed in the usual manner. Prehensile palps of the maxillipeds in male very unequal, the terminal joint of the right one being very broad and expanded, that of the left one narrow unguiform. Ejaculatory tubes slender, with numerous chitinous whorls, and the distal end funnel-shaped. Outer lamella of the copulatory appendages tooth-shaped.

*Remarks*.—The present new genus is nearly allied to *Heterocypris*, differing however conspicuously in the shape of the shell, and more particularly in the valves, being perfectly equal and without any traces of marginal tubercles. The large size of the anterior duplicatures of the valves is also rather characteristic. The genus comprises as yet only a single species, to be described below.

#### 13. HOMOCYPRIS CONOIDEA, n. sp.

(Plate V, figs. 1–11.)

*Specific Characters*.—*Female*.—Shell, seen laterally, narrow oblong or somewhat conoid in outline, with the greatest height not attaining half the length and occurring somewhat behind the middle, dorsal

margin evenly arched and joining the anterior and posterior edges without any intervening angle, ventral margin distinctly sinuated in the middle, anterior extremity rather strongly produced and narrowly rounded at the end, posterior extremity considerably broader and obtusely blunted; seen dorsally, oblong oval in form, with the anterior extremity abruptly narrowed, the posterior obtuse. Surface of shell smooth and polished, with only scattered small pits, and clothed at both extremities with delicate hairs.

*Male* of smaller size than female, and easily recognisable by the densely coiled spermathecal tubes shining through the posterior part of the valves, form of shell about as in female, though somewhat more produced behind.

Colour bright yellow, changing on the dorsal face to orange.

Length of shell in female amounting to 1.35 mm.

*Remarks.*—The present form, when examined in the fresh state, may be easily mistaken for a species of *Heterocypris*, as it exhibits a very similar golden yellow colour. On a closer examination, however, it is found not only to differ essentially in the structure of the shell, but also in habits. Whereas the forms belonging to the genus *Heterocypris* are very active animals, swimming about in the water with great speed, the specimens of the present species are found almost constantly to keep at the bottom of the vessel in which they are watched, only quite exceptionally making a short trip through the water and in a rather slow manner.

*Occurrence.*—Numerous specimens of this form developed in some of my aquaria prepared with mud taken by Dr. Purcell from old dried-up pits on the Bergvliet Flats. It was also reared, though less abundantly, from the mud kindly forwarded to me from Mr. Hodgson, and taken at Port Elizabeth.

#### GEN. 6. CYPRICERCUS, G. O. Sars, 1894.

*Remarks.*—This genus was established by the present author in the year 1894, and was chiefly characterised by the unusually powerful development of the caudal rami, as indicated by the generic name proposed. Also, otherwise, this genus distinguishes itself pretty well; e.g. by the peculiar manner in which the spermathecal tubes of the male are curled up in the anterior part of the valves. In addition to the type species, another nearly allied form, first recorded by G. W. Müller, will be described later; and I have also had an opportunity of examining two other species unquestionably referable to the



same genus, the one from Algeria, the other from Australia. Moreover, I am much inclined to believe that the four European species, *Cypris fuscata*, *affinis*, *elliptica*, and *obliqua*, ought more properly to be adduced to the present genus.

14. CYPRICERCUS CUNEATUS, G. O. Sars.

(Plate V, figs. 12-19.)

*Cypricercus cuneatus*, G. O. Sars. L.c. p. 33, pl. vi, fig. 1, a-h.

*Specific Characters*—*Female*.—Shell very tumid; seen laterally, oblong cuneiform, tapering behind to an obtuse point, greatest height not attaining half the length and occurring rather in front of the middle, dorsal margin gently arched and sloping evenly behind, ventral margin scarcely at all sinuated, being, on the contrary, somewhat convex in the greater part of its extent, anterior extremity much broader than the posterior and evenly rounded at the end, posterior extremity drawn out to an obtuse point; seen dorsally, broadly ovate in outline, with the greatest width fully attaining half the length and occurring behind the middle, both extremities obtusely pointed. Valves conspicuously unequal, the left one overlapping the right along the whole anterior extremity, as also somewhat ventrally, being however at the end of the posterior extremity slightly overlapped by the right one. Surface of shell smooth and clothed at each extremity with delicate hairs. Caudal rami very largely developed, attaining nearly half the length of the shell.

*Male* somewhat smaller than female, but exhibiting a much similar shape of the shell.

Colour in female light yellow, with a greenish tinge, that in male more ochraceous.

Length of shell amounting in female to 1.60 mm.

*Remarks*.—The present species being that on which the genus *Cypricercus* originally was founded, ought accordingly to be regarded as the type of that genus. It is easily distinguished from the other species by the shape of the shell and by the exceedingly powerful development of the caudal rami.

*Occurrence*.—The specimens of this form originally examined were reared from mud taken at Knysna. A few female specimens were also found in one of my aquaria prepared with mud taken by Dr. Purcell near Bergvliet.

## 15. CYPRICERCUS EPISPHAENA, G. W. Müller.

(Plate IV, figs. 20–28.)

*Cypricercus episphaena*, G. W. Müller. L.c. p. 155, figs. 1–8 (in text).

*Specific Characters—Female*.—Shell less tumid than in the preceding species, seen laterally, suboval in outline, with a very conspicuous hump-shaped prominence issuing from the hind extremity, greatest height not attaining half the length and occurring about in the middle, dorsal margin only slightly arched and sloping gently behind, ventral margin scarcely sinuated, anterior extremity obtusely rounded, posterior somewhat narrower and drawn out in the middle to the above-mentioned hump-shaped prominence; seen dorsally, oblong oval in outline, with the greatest width about in the middle and not attaining the height, both extremities somewhat irregularly produced at the end. Valves, as in the preceding species, conspicuously unequal, the left one overlapping the right along the whole anterior edge, whereas behind it is considerably overlapped by the right valve, the above-mentioned hump-shaped prominence being in reality exclusively formed by that valve. Surface of shell smooth and only sparingly hairy, the hairs being more conspicuous on the anterior edges. Caudal rami somewhat less powerful than in the type species, but otherwise of a very similar structure.

*Male* resembling the female in the general shape of the shell, but of somewhat smaller size, and easily recognisable by the translucent spermathecal tubes. Ejaculatory tubes comparatively shorter than in *C. cuneatus*, but of a similar structure, their proximal ends being bladder-like produced. Outer lamellae of the copulatory appendages produced at the end to two claw-like processes.

Colour dark yellowish brown, with a faint ochraceous tinge at each extremity.

Length of shell amounting in female to 1.60 mm.

*Remarks*.—I cannot doubt that the above-described form is identical with that recorded by G. W. Müller, though the figures given by that author of the shell do not fully agree with those here reproduced. The species may at once be distinguished from the other known forms by the peculiar hump-shaped prominence issuing from the hind extremity of the shell, a character which indeed induced me to note this form under the provisional name *C. caudatus*, before knowing the work of G. W. Müller.

*Occurrence*.—Numerous specimens of this species were contained

in one of the alcoholic samples forwarded to me from the South African Museum, and taken from a pond on Green Point Common. I have also had an opportunity of examining this form in the living state, having succeeded in raising some specimens from a parcel of mud taken in about the same locality. The specimens examined by G. W. Müller were collected at Plumstead.

16. *CYPRICERCUS MACULATUS*, G. W. Müller.

(Plate XIX, figs. 8-13.)

*Cypricercus maculatus*, G. W. Müller. Deutsche Südpolar Expedition, Ostracoda, p. 157, figs. 1-9 (in text).

*Specific Characters*.—*Male*.—Shell, seen laterally, oval in outline, slightly narrowed behind, greatest height in the middle and about equalling half the length, dorsal margin only slightly arched in its anterior part, but obliquely declining behind, ventral margin scarcely at all sinuated, anterior extremity broadly rounded, posterior obtusely produced; seen dorsally, regularly elliptical in shape, with the greatest width about half the length. Valves somewhat unequal, the left one overlapping the right in front by a rather broad and sharply defined border. Surface of shell smooth, with only slight traces of hairs. Posterior antennae very slender, with the penultimate joint distinctly subdivided in the middle. Prehensile palp of right maxilliped with the dactylus comparatively short and stout. Copulative appendages with the outer lamella small, terminating in an incurved lappet. Caudal rami rather largely developed and slightly flexuous; apical claws somewhat unequal, the larger one but little exceeding in length  $\frac{1}{3}$  of the ramus.

Colour (in preserved specimens) yellowish grey, variegated with a number of very conspicuous dark green patches extending more or less down the sides of the shell.

Length of adult male 1.50 mm.

*Remarks*.—The above-described form is unquestionably that recorded by G. W. Müller. It is closely allied to the type species *C. cuneata* G. O. Sars, but has the posterior corner of the shell less produced, and is, moreover, at once distinguished by the dark patches clothing the shell dorsally, and very conspicuous even in preserved specimens.

*Occurrence*.—Two specimens of this form, both of the male sex, were in the material received. They were taken from a pond on the Cape Flats, collected by Mr. K. H. Barnard.

## GEN. 7. STENOCYPRIS, G. O. Sars, 1889.

*Remarks.*—This genus was established as early as the year 1889 by the present author to include an Ostracod (*S. Malcolmsoni*) raised by him from Australian mud, and previously recorded by Baird and Brady from India. In recent times several additional species have been recorded from different parts of the world, but it is somewhat questionable if they all are in reality congeneric. The most prominent character distinguishing the present genus is unquestionably the structure of the caudal rami, which is very peculiar and unlike that in any other Ostracoda. I have found it perfectly constant in all the species examined by me, with only very slight modifications, and this character may accordingly be regarded as quite conclusive for the recognition of this genus. Seven species, belonging to the Fauna of the Cape Province, and one from the Transvaal, will be described below.

## 17. STENOCYPRIS HODGSONI, n. sp.

(Plate VI, figs. 1–12.)

*Specific Characters*—*Female*.—Shell much compressed; seen laterally, elongate reniform in outline, greatest height about in the middle and scarcely exceeding  $\frac{2}{3}$  of the length, dorsal margin nearly straight in the middle and declining slowly in front, somewhat more steeply behind, ventral margin deeply sinuated, both extremities obliquely deflexed and rounded at the end; seen dorsally, narrow fusiform, with the greatest width scarcely attaining  $\frac{1}{3}$  of the length, both extremities acutely pointed. Valves rather thin and pellucid, without any thickened marginal zone, and nearly equal, inner duplication of the anterior extremity remarkably broad. Surface of shell smooth, with only small scattered pits, and exhibiting in front the usual dense clothing of delicate hairs, posterior extremity, however, provided with scattered hairs of very unequal size, some of them being remarkably slender and pointing in different directions. Caudal rami, as in the other species of this genus, conspicuously asymmetrical, the right ramus being much narrower than the left, the dorsal edge of which is divided in a comb-like row of coarse denticles gradually increasing in size distally; apical claws of both rami densely denticulate along the concave edge, the denticles of the outer half being somewhat smaller than those on the inner; dorsal setae wanting.

*Male* of nearly same size as female, and resembling it in the general shape of the shell. Prehensile palps of maxillipeds not much unequal.



Ejaculatory tubes of a similar structure to those in *S. smaragdina*, as represented in fig. 24 on the accompanying plate. Outer lamella of the copulatory appendages forming at the base outside an obtusely acuminate corner, the extremity being broadly spatulate in shape.

Colour in female light yellowish green, somewhat darker dorsally, ripe ova shining through the shell by a vivid reddish-orange hue.

Length of shell amounting to 2.70 mm.

*Remarks.*—The above-described form is easily distinguished from the type species *S. Malcolmsoni*, by the more pronouncedly reniform shape of the shell and by the less strongly chitinated valves. It is also of considerably larger size. On the accompanying plate the several appendages in this species are drawn for comparison with those in the other genera here treated of.

*Occurrence.*—This form was reared in great numbers from the mud kindly forwarded to me from Mr. Hodgson, and taken from a vley near Port Elizabeth. It also occurred in some of the alcoholic samples sent to me from the South African Museum (Cape Flats), and a few specimens of the same species were, moreover, raised from mud taken by Mr. Orjan Olsen near the whaling station at Saldanha Bay.

18. *STENOCYPRIS OLIVACEA*, n. sp.

(Plate VI, figs. 13–18.)

*Specific Characters*.—*Female*.—Shell, seen laterally, oblong reniform in outline, with the greatest height somewhat exceeding  $\frac{2}{3}$  of the length, dorsal margin very slightly curved in the middle and abruptly bent in the ocular region, declining also rather steeply behind, ventral margin deeply sinuated, both extremities obliquely deflexed, the posterior one forming below a well-marked angle, which in most cases is drawn out to an acute spur-like process; seen dorsally, narrow fusiform, with the greatest width about equalling  $\frac{1}{3}$  of the length and occurring a little behind the middle, both extremities acuminate. Valves slightly unequal, the spur-like process of the posterior extremity being only formed by the right valve. Surface of shell smooth and rather densely hairy in front, the hairs of the posterior extremity more scattered, but of greater length. Caudal rami of a structure very similar to that in the preceding species.

*Male* resembling the female both in size and in the general shape of the shell, but easily recognisable by the densely coiled spermat

tubes shining through the posterior part of the valves. Prehensile palps of maxillipeds with the terminal claw-like joint comparatively larger and more lamellar than in the preceding species. Outer lamella of the copulatory appendages without any basal prominence.

Colour in both sexes dark olivaceous brown.

Length of shell amounting to 2.70 mm.

*Remarks.*—In size and general appearance this form bears some resemblance to the preceding species. The shell is, however, comparatively less elongated, and its posterior extremity rather unlike in shape. Moreover, the colour is very different in the two species.

*Occurrence.*—Some specimens of this form were reared in one of my aquaria prepared with mud taken by Dr. Purcell from a small pool on the Cape Flats, alongside the railway line between Retreat and Lakeside.

#### 19. STENOCYPRIS SMARAGDINA, n. sp.

(Plate VI, figs. 19–24.)

*Specific Characters—Female.*—Shell less distinctly reniform than in the two preceding species, seen laterally, irregularly oblong oval in outline, with the greatest height somewhat behind the middle and considerably exceeding  $\frac{2}{3}$  of the length, dorsal margin gently arched in the middle and somewhat bent in the ocular region, sloping evenly behind, ventral margin only very slightly sinuated in front of the middle, anterior extremity evenly rounded off, posterior somewhat deflexed and terminating below in an obtuse corner; seen dorsally, subfusiform in shape, with the greatest width about  $\frac{1}{3}$  of the length and occurring in front of the middle, posterior extremity somewhat narrower produced than the anterior. Valves nearly equal and rather thin and pellucid. Surface of shell smooth and all over clothed with rather strong hairs, those on the posterior extremity not differing from the others. Caudal rami of a structure very similar to that in the two preceding species, though perhaps a little more slender.

*Male* about the size of the female and resembling it in the general shape of the shell. Prehensile palps of maxillipeds nearly perfectly equal. Ejaculatory tubes slender, with numerous chitinous whorls and the proximal ends tuberculiform produced. Outer lamella of the copulatory appendages with a rather prominent acuminate lappet at the base, outside.

Colour in both sexes bright emerald green.

Length of shell amounting to 3.00 mm.

*Remarks.*—The present species is easily distinguished from the two preceding ones by the rather dissimilar shape of the shell, and, when examined in the living state, also by its beautiful green colour. It is the largest of the species as yet known, except *pectinata*.

*Occurrence.*—Several specimens, both males and females, of this handsome form were reared in one of my aquaria prepared with mud taken by Dr. Purcell from a grassy dried-up vley on the Cape Flats. Like the other species of the present genus, the animal is enabled to move rather quickly through the water, though more frequently it is found to keep to the bottom of the vessel in which it is observed, running about through the loose mud in search of food.

20. *STENOCYPRIS PARDALIS*, n. sp.

(Plate VII, figs. 1 and 2.)

*Specific Characters*—*Female.*—Shell much compressed; seen laterally, of a narrow, somewhat lanceolate shape, with the greatest height only slightly exceeding  $\frac{1}{3}$  of the length, dorsal margin almost straight in the middle and sloping slowly in front, more steeply behind, ventral margin scarcely at all sinuated, anterior extremity, in most of the specimens, produced above the median axis to a small dentiform corner, below which the edge curves obliquely backwards, posterior extremity deflexed and produced below in a more or less developed acute spur-like process; seen dorsally, very narrow, the greatest width scarcely exceeding  $\frac{1}{4}$  of the length, both extremities acuminate. Valves slightly unequal, the anterior dentiform corner, as also the spur-like process behind, being exclusively formed by the left valve. Surface of shell smooth and polished, being clothed along the lower part of the anterior extremity with delicate curved hairs, behind with more scattered hairs, some of which are of considerable length. Structure of the several appendages scarcely exhibiting any more conspicuous difference from that in the preceding species.

*Male* resembling the female in its general appearance, but exhibiting the usual sexual differences.

Colour very peculiar and unlike that in most other Ostracoda, the shell being all over mottled with somewhat irregular dark pigmentary specks strongly contrasting with the pale yellowish-grey ground colour of the shell.

Length of shell measuring 2.60 mm.

*Remarks.*—This is a very distinct and easily recognisable species,

being well distinguished by the narrow lanceolate shape of the shell, and more particularly by its very peculiar colour, which even in specimens preserved for a long time in alcohol is well observable. The specific name here proposed alludes to this latter character.

*Occurrence*.—Several specimens of this pretty species were reared from the same parcel of mud (Cape Flats) which yielded *S. smaragdina*. It also occurred in one of the alcoholic samples sent to me from the South African Museum, and taken from a pond on the Cape Flats. The animal is very active in its movements, swimming about with great speed, now and then attaching itself to the walls of the vessel in which it is watched.

## 21. STENOCYPRIS PERARMATA, Brady.

(Plate VII, figs. 3 and 4.)

*Stenocypris perarmata*, Brady. Entomostraca collected in Natal by Mr. J. Gibson. Proc. Zool. Soc. London, 1904, vol. ii, p. 126, pl. viii, figs. 50–57.

*Specific Characters—Female*.—Shell much compressed; seen laterally, narrow oblong in outline, with the greatest height scarcely attaining  $\frac{2}{3}$  of the length, dorsal margin nearly straight in the middle, sloping slowly in front, more steeply behind, ventral margin nearly straight, anterior extremity narrowly rounded, posterior scarcely deflexed and obtuse at the end; seen dorsally, oblong lanceolate in form, with both extremities acuminate. Valves subequal and rather pellucid, unarmed. Surface of shell smooth and clothed in front and behind with delicate hairs.

Colour not yet ascertained.

Length of shell amounting to 2.00 mm.

*Male* unknown.

*Remarks*.—I am not quite assured that the above-described form is in reality identical with Brady's species, as it seems to differ a little in the shape of the shell, to judge from the figure given by that author. It cannot, however, be referred to any of the four species described in the preceding pages, and as the differences from Brady's species in any case are of a very trifling nature, I have not felt justified to establish a new species for its reception.

*Occurrence*.—Two female specimens of this form were found in one of the alcoholic samples sent to me from the South African Museum, and taken in the neighbourhood of Cape Town by Mr. K. H. Barnard.

*Distribution*.—Natal (Brady); Central Africa (the present author).



22. *STENOCYPRIS PECTINATA*, n. sp.

(Plate XIX, figs. 14-17.)

*Specific Characters—Female.*—Shell much compressed; seen laterally, oblong semilunar in outline, greatest height about in the middle and not fully attaining half the length, dorsal margin evenly arched, ventral very slightly sinuated in front of the middle, anterior extremity obliquely rounded, posterior deflexed and terminating below in a rather prominent, though obtusely pointed corner; seen dorsally, narrow lanceolate, with the greatest width scarcely exceeding  $\frac{1}{4}$  of the length. Valves subequal, thin and pellucid, without any obvious sculpture and only sparingly hairy; posterior corner of each valve armed with a row of five very small denticles. Caudal rami, as usual, conspicuously asymmetrical, the left one being much narrower than the right and only very minutely spinulose along the outer part of the dorsal edge. Right ramus nearly straight, with the dorsal edge divided into nine remarkably slender and somewhat distant spiniform denticles, all of about same size, and followed proximally by only a few very small spinules; apical claws of both rami moderately strong and denticulated in the usual manner, the larger one nearly twice as long as the other, but scarcely exceeding in length  $\frac{1}{3}$  of the ramus.

Colour not yet ascertained.

Length of adult female reaching 3.40 mm.

*Remarks.*—In size and general appearance this form somewhat resembles *S. aldebrae* of G. W. Müller, and indeed at first I believed it to be that species. On a closer examination I have, however, found it to differ very decidedly in some points, and more particularly in the armature of the right caudal ramus, which is rather peculiar and unlike that in any other species known to me.

*Occurrence.*—Several specimens of this form, all of the female sex, are in the material received, having been collected in the Transvaal by Mr. R. W. E. Tucker.

23. *STENOCYPRIS DECLIVIS*, n. sp.

(Plate XIX, figs. 18-20.)

*Specific Characters—Female.*—Shell, seen laterally, narrow subreniform in outline, greatest height behind the middle and scarcely exceeding  $\frac{2}{3}$  of the length, dorsal margin straight in the middle, but abruptly bent behind and obliquely sloping to the hind corner, ventral

margin distinctly sinuated in the middle, anterior extremity narrowly rounded, posterior obliquely deflexed and gradually tapered below to a rather projecting obtuse corner; seen dorsally, narrow oblong, with the greatest width about equalling  $\frac{1}{3}$  of the length. Valves subequal, finely hairy in front and clothed behind with scattered hairs of greater length. Right caudal ramus armed along the outer part of the dorsal edge with numerous closely set and comparatively delicate denticles gradually diminishing in size proximally; apical claws very unlike in size, the proximal one being scarcely half as long as the distal one and rather more curved.

Colour (in preserved specimens) uniformly dark green.

Length of adult female 2.60 mm.

*Remarks.*—This form is closely allied to *S. Hodgsoni* G. O. Sars (see the chief account), differing however somewhat in the shape of the shell, as also apparently in colour.

*Occurrence.*—Three well-preserved female specimens of this form are in the material received, having been taken from a pond on the Cape Flats, collected by Mr. K. H. Barnard.

#### 24. STENOCYPRIS AMETRA, G. W. Müller.

(Plate XIX, figs. 21–23.)

*Stenocypris ametra*, G. W. Müller. Deutsche Südpolar Expedition, Ostracoda, p. 171, figs. 1–6 (in text).

*Specific Characters*—*Female*.—Shell, seen laterally, oblong oval in outline, greatest height in the middle and slightly exceeding  $\frac{2}{3}$  of the length, dorsal margin forming throughout a quite even and gentle curve, ventral margin slightly sinuated in the middle, anterior extremity rounded off, posterior obliquely deflexed and drawn out below to an acutely produced corner; seen dorsally, oblong fusiform, with the greatest width about equalling  $\frac{1}{3}$  of the length and occurring somewhat in front of the middle. Valves slightly unequal, the anterior edge of the left one projecting a little beyond that of the right and forming above the middle an angular corner, hind extremity of same valve produced to a well-marked spiniform process. Surface of shell smooth and polished, finely hairy at each extremity. Right caudal ramus armed in its outer part dorsally with numerous densely crowded delicate denticles rapidly diminishing in size proximally and not fully extending to the middle of the ramus; apical claws comparatively slender and less unequal than in the two preceding species, the larger one about equalling in length half the ramus.

Colour (of the preserved specimen) uniformly whitish grey, without any traces of dark specks.

Length of the specimen examined 2.90 mm.

*Remarks.*—I think I am right in identifying the above-described form with Müller's species, though the figure of the shell (lateral aspect) given by that author does not fully agree with that drawn on the accompanying plate. The species is closely allied to *S. pardalis* G. O. Sars (see the chief account), but is of considerably larger size and also of a less narrow shape. Moreover, I have failed to detect even the slightest trace of the characteristic dark specks ornating the shell in *S. pardalis*.

*Occurrence.*—A solitary female specimen of this form was found in one of the samples sent to me from the South African Museum, and taken from a pond on the Cape Flats by Mr. K. H. Barnard.

#### GEN. 8. SCLEROCYPRIS, n.

*Generic Characters.*—Shell not much tumid, subclavate in shape, and of rather a heavy consistency, exhibiting a well-marked granular sculpture. Valves subequal, with the anterior edges very broad and peculiarly deflexed below, inner duplicatures strongly marked, though not particularly broad. Natatory setae of the posterior antennae not much elongated. Maxillae with the terminal joint of the palp broader than long, masticatory lobes very short and stout. Caudal rami slender, resembling somewhat those in the genus *Eucypris*. Propagation bisexual.

*Remarks.*—The present new genus is only founded on a single species, which I am unable to refer to any of the other known genera. It is chiefly distinguished by the unusually heavy consistency of the shell, a character which indeed has given rise to the generic name here proposed. The genera which seem to come nearest it are *Eucypris* and *Chlamydotheca*; but it is found to differ from either of them, not only in the structure of the shell, but also in that of some of the appendages. Moreover, the pronouncedly bisexual nature may be adduced as a distinctive character of the present genus.

#### 25. SCLEROCYPRIS CLAVULARIS, n. sp.

(Plate VII, figs. 5–17.)

*Specific Characters—Female.*—Shell, seen laterally, oval quadrangular or more properly somewhat clavate in outline, with the

greatest height quite in front and about equalling half the length, dorsal margin obliquely declining in the middle and forming just above the ocular region an abrupt angular bend, ventral margin nearly straight, anterior extremity broadly rounded and expanding below to a projecting lobe, posterior extremity obliquely produced, with the lower corner obtusely rounded; seen dorsally, oval fusiform in outline, with the greatest width about equalling  $\frac{2}{3}$  of the length, both extremities pointed. Valves rather opaque and nearly perfectly equal, each with a rather broad pellucid border in front; inner duplicatures of about equal width in front and behind, and defined inside by a thickened chitinous rim which appears particularly strong just behind the ventrally projecting lobe of the anterior extremity. Surface of shell sculptured with closely set pits, and rather densely hairy at both extremities. Caudal rami rather slender and slightly attenuated distally, with the outer part of the dorsal edge very finely spinulose; terminal claws and setae of the usual appearance.

*Male* fully as large as female and having the shell a little more elongate. Prehensile palps of maxillipeds quite equal on both sides, proximal joint produced inside to a well-marked thumb-like process, distal joint claw-like. Ejaculatory tubes surrounded by a hyaline envelope and each provided with numerous chitinous whorls, proximal and somewhat funnel-shaped. Copulatory appendages of a structure very similar to that in *Stenocypris*.

Colour dark olivaceous, clouded with irregular band-like patches of a deep green hue.

Length of shell amounting to 2.80 mm.

*Remarks.*—The above-described form cannot be confounded with any of the other known Ostracoda, exhibiting, as it does, some rather conspicuous peculiarities, both as to the appearance of the shell and the structure of some of the appendages. It belongs to the larger-sized forms of the present family.

*Occurrence.*—Some specimens of this interesting Ostracod were raised from a parcel of mud kindly sent to me from the South African Museum, and taken from a vley at Klipdam, near Kimberley. As a rule, the specimens kept at the bottom of the aquarium in which they were watched, burying themselves more or less deeply in the loose mud, and only quite occasionally one or other of them was seen making a short swimming trip, the heavy weight of the shell apparently impeding a more free motion. Unlike what is generally the case, most of the specimens obtained were of the male sex.



## GEN. 9. HERPETOCYPRIS, Brady and Norman.

*Remarks.*—This genus, the type of which is the well-known European species *Cypris reptans* Baird, was originally only based on a single character, viz. the want (or rudimentary state) of the natatory setae on the posterior antennae, and the consequent loss of the swimming power. In accordance therewith, several heterogeneous species were at first adduced to this genus, which now is taken in a much more restricted sense than done by its founders. One species, undoubtedly referable to the present genus, is represented in the Fauna of the Cape Province, and will be described below.

## 26. HERPETOCYPRIS CHEVREUXI, G. O. Sars.

(Plate VII, figs. 18–22.)

*Stenocypris Chevreuxi*, G. O. Sars. Arch. f. Mathem. u. Naturv. f. 1896, p. 5, pls. i and ii.

*Syn.* : *Erpetocypris Helenae*, G. W. Müller.

*Specific Characters*—*Female*.—Shell, seen laterally, of a narrow oblong reniform shape, with the greatest height scarcely exceeding  $\frac{2}{3}$  of the length, dorsal margin in the greater part of its extent perfectly straight and horizontal, declining, slowly in front, more steeply behind, ventral margin slightly sinuated, anterior extremity obliquely rounded and somewhat deflexed below, posterior a little broader than the anterior and obtuse at the end; seen dorsally, narrow oblong in shape, with the greatest width scarcely attaining  $\frac{1}{3}$  of the length and occurring somewhat behind the middle, both extremities obtusely pointed. Valves, as in the type species, conspicuously unequal, the left one overlapping the right considerably both in front and behind, as also somewhat along the ventral face. Surface of shell smooth and polished, clothed at both extremities with hairs, those on the hind extremity remarkably prolonged and less densely crowded. Natatory setae on the posterior antennae well defined and extending nearly to the ends of the apical claws, being however very thin and scarcely at all plumose. Caudal rami rather powerfully developed and perfectly symmetrical, with the base somewhat dilated and the outer part sublinear in form, dorsal edge clothed in its outer half with small spinules arranged in regular groups; apical claws comparatively short and distinctly denticulate on their concave edge.

Colour more or less olivaceous, clouded with dark green.

Length of shell amounting to 2·30 mm.

*Remarks.*—This form was described in the year 1896 by the present author from specimens raised out of dried mud from Algeria, but was at that time erroneously referred to the genus *Stenocypris*, on account of the presence on the posterior antennae of distinctly developed natatory setae, such setae being presumed to be wanting in *Herpetocypris*. I am, however, now convinced that this form ought in reality to be included in the latter genus, as it otherwise shows a very close relationship to the type species *H. reptans*. The form recorded by G. W. Müller as *Erpetocypris Helenae* is unquestionably identical with the present species.

*Occurrence.*—This Ostracod developed in great abundance in some of my aquaria prepared with mud taken by the late Dr. Purcell from a vley on the Cape Flats. The specimens were as a rule only found on the bottom of the aquaria, running rather quickly through the loose mud in search of food. In some cases, especially when the aquaria were exposed to the direct sunlight, they were seen ascending up the walls of the aquaria and even to move for a short space freely in the water, though in a rather slow and clumsy manner. All the specimens examined were of the female sex, and as I have watched this form during several years and in numerous successive generations, without detecting even a single male, it may be proved that this form, like the type species, propagates in an exclusively parthenogenetical manner.

#### GEN. 10. MEGALOCYPRIS, G. O. Sars, 1898.

*Remarks.*—This genus was established in the year 1898 by the present author to include two big species of Ostracoda derived from the Cape Colony, the one of which (*M. princeps*) was described and figured in detail. The genus is somewhat allied to *Herpetocypris*, differing however in certain points decidedly, both as regards the structure of the shell and that of the appendages.

#### 27. MEGALOCYPRIS D'URBANI (Baird).

(Plate VIII, figs. 1–16.)

*Cypris d'Urbani*, Baird. Description of some new species of Entomostraca. Ann. and Mag. Nat. Hist. 1862, p. 2, pl. i, fig. 1, *a–b*.

*Syn.* : *Megalocypris Hodgsoni*, G. O. Sars.

*Specific Characters*—*Female*.—Shell somewhat tumid; seen laterally, oval reniform in outline, greatest height about equalling half the

length and occurring rather behind the middle, dorsal margin angularly bent in the ocular region and nearly horizontal in the middle, joining the hind extremity by a very bold and quite even curve, ventral margin slightly sinuated in the middle, anterior extremity evenly rounded, posterior somewhat produced and obliquely deflexed, terminating below in an obtuse corner; seen dorsally, oval fusiform, with the greatest width about equalling  $\frac{2}{3}$  of the length, both extremities acutely pointed. Valves rather thin and perfectly equal, with the inner duplicatures not particularly broad. Surface of shell nearly smooth, though exhibiting, under a high magnifying power, a finely granular sculpture, and rather densely clothed with delicate hairs more conspicuous at each extremity. Natatory setae of the posterior antennae quite rudimentary, being replaced by a bundle of extremely small bristles. Caudal rami slender and attenuated, with the outer half of the dorsal edge clothed with minute spinules arranged in regular groups; apical claws rather narrow and not much unequal in size.

*Male* nearly of same size as female and having the shell of a rather similar shape, but easily recognisable by the densely coiled spermathecae shining through the posterior part of the valves. Prehensile palps of maxillipeds very largely developed and pronouncedly cheliform, the proximal joint being considerably expanded and produced inside to a prominent thumb-like process against which the claw-like distal joint admits to be impinged, the latter joint slightly unlike on each side, that on left palp being produced to a very thin point. Ejaculatory tubes comparatively small, with numerous chitinous whorls and the proximal ends somewhat funnel-shaped. Copulatory appendages large, with the outer lamella very broad, triangular.

Quite young specimens (see fig. 4) rather unlike the adults, having the anterior part of the shell much higher than the posterior, and the valves armed along the anterior edge and part of the inferior one with densely crowded coarse denticles.

Colour of adult animal yellowish brown changing to olivaceous, with an irregular dark shadow in front of the middle; caecal tubes of intestine very conspicuous and bounded on each side by a narrow dark stripe.

Length of shell amounting to 5.20 mm.

*Remarks.*—This form was announced, but not described, by the present author as a new species under the name of *M. Hodgsoni*. It has, however, turned out to be identical with a form long ago recorded

by Baird, and the specific name proposed by me must, of course, be replaced by that originally given to the species by Baird.

*Occurrence*.—This big Ostracod was reared in considerable numbers from the mud kindly forwarded to me from Mr. Hodgson, and derived from a vley near Port Elizabeth. Some specimens were also raised from mud taken in the neighbourhood of Cape Town, and the specimens originally examined by Baird were likewise from that region. The animal is quite devoid of swimming power and is, of course, only found on the bottom, over which it crawls with great dexterity, at times burrowing more or less deeply within the loose mud. Male specimens are met with nearly as frequently as females.

## 28. MEGALOCYPRIS PRINCEPS, G. O. Sars.

(Plate VIII, figs. 17 and 18.)

*Megalocypris princeps*. G. O. Sars. On a gigantic Fresh-water Ostracod. Arch. f. Mathem. u. Naturv. vol. xx, No. 8, p. 5, with a plate.

*Specific Characters*.—*Female*.—Shell comparatively more tumid than in the preceding species, and, seen laterally, of a somewhat more elongated shape, with the greatest height not attaining half the length, dorsal margin quite straight in the middle and angularly bent in front, joining the posterior edge by a quite even curve, ventral margin rather deeply sinuated, anterior extremity evenly rounded, posterior obtusely produced in the middle; seen dorsally, broadly fusiform in outline, with the greatest width exceeding  $\frac{2}{3}$  of the length and nearly attaining the height, both extremities abruptly contracted and acuminate. Valves rather opaque, of a dull appearance, and clothed with very short hairs. Structure of the several appendages very similar to that in the preceding species.

*Male* a little smaller than female, but resembling it in the general shape of the skull.

Colour in female light yellowish grey, clouded in some places with green; in male somewhat darker.

Length of shell attaining 7.70 mm.

*Remarks*.—This form was described and figured in detail by the present author in the above-quoted Journal, as the type of the genus *Megalocypris*. It is perhaps the largest of all hitherto known Ostracoda, and thus fully deserves the specific name proposed. From the preceding species, to which it bears a very close relationship, it may be distinguished, in addition to its larger size, by the comparatively



more elongated form of the shell, the posterior extremity of which is also of a somewhat different shape.

*Occurrence.*—The specimens originally examined were contained in an alcoholic sample sent to me from the South African Museum, and taken September 1897 from a pond on Green Point Common. I have also had an opportunity of examining this splendid Ostracod in the fresh and living state, some specimens being successfully reared in my aquaria from mud taken in about the same place.

29. *MEGALOCYPRIS HISPIDA*, n. sp.

(Plate XX, figs. 16–22.)

*Specific Characters*—*Female*.—Shell elongate and rather tumid; seen laterally, narrow subreniform in outline, and somewhat contracted in the middle, greatest height not nearly attaining half the length, dorsal margin slightly angular in the ocular region and evenly curved behind, but nearly straight or even a little concave in the middle, ventral margin very distinctly sinuate, anterior extremity obtusely rounded, posterior rather broader and somewhat deflexed, terminating below in an obtuse corner; seen dorsally, broadly fusiform, with the greatest width about half the length, both extremities abruptly contracted. Surface of shell finely granular and everywhere densely clothed with quite unusually strong curved hairs, giving it a peculiar hirsute appearance; each valve, moreover, exhibiting somewhat behind the centre a single small, but well-marked tubercle, more distinctly visible in the dorsal aspect of the shell. Posterior antennae comparatively slender, with the apical claws of moderate length; natatory setae very small, not even extending to the middle of the penultimate joint. Caudal rami slender and narrow, slightly curved in their outer part; apical claws not very unequal, the larger one scarcely attaining half the length of the ramus.

*Male* of about same size as female and closely resembling it in the shape of the shell. Prehensile palps of maxillipeds less strong than in the type species and only slightly unequal, thumb-like process very narrow and issuing about in the middle of the hand. Copulatory appendages comparatively large, with the inner lamella narrowly produced at the end, outer lamella broad, leaf-like.

Colour (of preserved specimens) yellowish grey, with irregular dark shadows.

Length of adult female amounting to 5·10 mm.

*Remarks.*—The above-described form is nearly related to the  
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two species recorded in the chief account, but evidently specifically distinct from either of them, being especially distinguished by the densely hispid surface of the shell. The shape of the prehensile palps of the maxillipeds in the male, as also that of the copulatory appendages, is, moreover, different, as seen by comparing the figures on the accompanying plate with those given in the chief account.

*Occurrence.*—Four well-preserved specimens of this form were found in the material received, having been collected by Mr. K. H. Barnard from a pond on the Cape Flats.

30. MEGALOCYPRIS TUBERCULATA, n. sp.

(Plate XX, figs. 23–28.)

*Specific Characters*—*Female*.—Shell less elongated than in the preceding species and much more compressed; seen laterally, oblong oval in outline, with the greatest height about half the length, dorsal margin subangular both in front and behind, ventral margin distinctly sinuated, anterior extremity evenly rounded, posterior not deflexed, terminating in an obtuse corner lying about in the longitudinal axis; seen dorsally, narrow oblong, with the greatest width only slightly exceeding  $\frac{1}{3}$  of the length, anterior extremity more pointed than the posterior. Valves only sparingly hairy, but each provided with a number of very conspicuous tubercles, one of which, located about in the centre, is particularly strong, unboniform, the others being rather smaller and somewhat irregularly arranged. Posterior antennae comparatively less slender than in the preceding species, and having the natatory setae much more fully developed, extending to about the middle of the apical claws. Caudal rami very narrow and evenly curved; apical claws rather unequal, the larger one about equalling in length half the ramus.

*Male* scarcely differing from the female in the general shape and armature of the shell. Prehensile palps of maxillipeds with the thumb-like process issuing from near the base of the hand, outer part of the latter very narrow and somewhat curved. Copulatory appendages with the inner lamella obtusely rounded at the end, outer lamella comparatively smaller than in the preceding species and somewhat securiform in shape.

Colour not yet ascertained.

Length of adult female 3.60 mm.

*Remarks.*—The present form is at once distinguished from any of

the other species of this genus by the peculiar tubercular armature of the shell, a character which indeed has given rise to the specific name here proposed. Moreover, in the structural details some well-marked differences are found, more particularly as regards the development of the natatory setae on the posterior antennae, the shape of the prehensile palps of the maxillipeds in the male, and that of the copulatory appendages.

*Occurrence.*—Several specimens of this distinct species are in the material received, having been collected by Mr. J. H. Power at Kimberley.

GEN. 11. ISOCYPRIS, G. W. Müller, 1908.

*Syn.*: *Hyalocypris*, Brady.

*Generic Characters.*—Shell much compressed, more or less oval in shape, with a rather conspicuous shallow depression just in front of the ocular region. Valves perfectly equal, each exhibiting in front a well-marked transversely striated border partly continued along the ventral face; inner duplicature of the anterior extremity very broad, that of the posterior much smaller, or quite wanting. Surface of shell smooth and more or less densely hairy. Natatory setae of posterior antennae in some cases well developed, in other cases quite rudimentary. Maxillary palp strong, with the terminal joint spatulate in form; masticatory lobes short and thick. Maxillipeds with the masticatory lobe comparatively broad and expanded palp rather small, unarticulate. Anterior legs of quite an unusual large size, so as not to be wholly withdrawn within the shell, and terminating in an exceedingly slender, almost straight claw. Posterior legs much smaller, and of normal structure. Caudal rami well developed and slightly curved, with the apical claws of moderate size.

*Remarks.*—This genus was proposed in the year 1908 by G. W. Müller to include two closely allied species *I. perangusta* and *I. priomema*. The characteristic of the genus given by that author appears, however, somewhat unsatisfactory, as no regard has been paid to the most prominent peculiarity of the genus, viz. the extraordinary development of the anterior legs. The relationship to the genus *Amphicypris*, as suggested by Müller, seems to me to be a very remote one. On the other hand, as regards the general shape of the shell and the structure of some of the appendages, a certain resemblance may be found to the genus *Ilyocypris*, which, however, in other respects differs decidedly. The genus *Hyalocypris* of Brady is

evidently identical with Müller's genus. Three well-defined species of the present genus will be described below.

31. *ISOCYPRIS NIVEA*, n. sp.

(Plate IX, figs. 1-13.)

*Specific Characters*.—*Female*.—Shell, seen laterally, of a somewhat irregular oval reniform shape, with the greatest height somewhat in front of the middle and not fully attaining half the length, dorsal margin perfectly straight in the middle, angularly bent in front, and declining rather steeply behind, preocular sinus well marked, ventral margin slightly concaved, anterior extremity broadly rounded, posterior slightly produced in the middle; seen dorsally, narrow lanceolate in outline, with the greatest width scarcely attaining  $\frac{1}{3}$  of the length; anterior extremity more pointed than the posterior. Valves of rather firm consistency and very little pellucid, with the striated marginal rim extending downwards along the whole ventral face and part of the hind extremity, inner duplicature of this extremity distinct, though rather small. Surface of shell of a dull appearance and clothed with comparatively short and delicate hairs, two of them, however, issuing from the posterior extremity of each valve, being much longer than the others. Natatory setae of the posterior antennae quite rudimentary. Caudal rami comparatively narrow, with the outer part of the dorsal edge very finely spinulose.

*Male* of about same size as female and resembling it in the general shape of the shell. Prehensile palps of maxillipeds quite equal and rather narrow, the proximal joint being scarcely at all expanded, but armed inside beyond the middle with a strong movable spine, distal joint narrow unguiform. Ejaculatory tubes slender, with numerous chitinous whorls. Copulatory appendages with the outer lamella spatulate in form.

Colour of shell uniformly opaque white, most of the appendages of a light yellow hue.

Length of shell amounting to 1.90 mm.

*Remarks*.—The above-described form is evidently congeneric with the two species recorded by G. W. Müller, but is easily distinguishable from either of them by its much coarser and opaque white shell, and by the rudimentary condition of the natatory setae on the posterior antennae being also of considerably larger size.

*Occurrence*.—This form was successfully reared in one of my aquaria prepared with mud taken from a pond on Green Point Common.



Some specimens were also found in one of the alcoholic samples sent to me from the South African Museum, and derived from the same region. In accordance with the rudimentary condition of the natatory setae, the animal is quite devoid of swimming power, and the specimens were of course only found on the bottom of the aquarium, more or less deeply buried in the loose mud. Males and females occurred in nearly equal number.

32. *ISOCYPRIS PRIOMENA*, G. W. Müller.

(Plate IX, figs. 14–17, and Plate XIX, figs. 4–7.)

*Isocypris priomena*, G. W. Müller. L.c. p. 161, figs. 1–5 (in text).

*Specific Characters*—*Female*.—Shell comparatively somewhat shorter than in the preceding species and, seen laterally, of a more regular ovoid shape, greatest height behind the middle and about equalling half the length, dorsal margin gently arched and declining quite evenly behind, supraocular angle obsolete, ventral margin slightly sinuated in the middle, anterior extremity somewhat produced and obtusely blunted at the end, preocular sinus well marked; seen dorsally, exhibiting a similar narrow lanceolate shape to that in the preceding species. Valves very thin and pellucid, with the striated marginal border only present in front; inner duplicature of hind extremity quite wanting. Surface of shell smooth and all over clothed with rather coarse recurved hairs, two of which, issuing from the hind extremity, are distinguished by their considerable length. Natatory setae of the posterior antennae well developed, reaching somewhat beyond the apical claws. Caudal rami comparatively broader than in *I. nivea*, with the dorsal edge quite smooth.

*Male* differing from female in a similar manner to that in the preceding species.

Colour whitish pellucid, with a more or less distinct yellow or pale orange tinge.

Length of shell scarcely exceeding 1.50 mm.

*Remarks*.—The present form agrees very closely with both of the species recorded by G. W. Müller, and I have indeed been in some doubt to which of them it should more properly be referred. Yet the species named as above seems to be that which, to judge from the figures given, is in the best accordance with the form examined by me.

*Occurrence*.—This species was reared from the same parcel of mud (Green Point Common) as the preceding one, and it also developed

rather abundantly in another of my aquaria prepared with mud taken at Klipdam, near Kimberley, by Mr. J. H. Power. In contrast to the preceding species, the present form is an habitual swimmer, and the specimens were often seen moving about rather quickly through the water, especially when the aquarium was exposed to the direct sunlight. During these movements the anterior legs were extended straight backwards, projecting with their outer part from the hind end of the shell, as represented in fig. 14. Most of the specimens examined were of the female sex; but I have also succeeded in finding some few male specimens, and have ascertained the accordance of the sexual characters with those in the male of *I. nivea*.

33. ISOCYPRIS PERANGUSTA, G. W. Müller.

(Plate XIX, figs. 1-3.)

*Isocypris perangusta*, G. W. Müller. Deutsche Südpolar Expedition, Ostracoda, p. 159, figs. 1-7 (in text).

*Syn.* : *Hyalocypris africana*, Brady.

*Specific Characters*—*Female*.—Shell much compressed; seen laterally, rather regularly elliptical in outline, greatest height about in the middle and scarcely attaining half the length, dorsal margin slightly depressed in the ocular region, but otherwise quite evenly arched, without any trace of an angle behind, ventral margin slightly sinuated in the middle, anterior extremity broadly rounded, posterior somewhat narrower and evenly obtuse; seen dorsally, lanceolate in shape, with the greatest width scarcely exceeding  $\frac{1}{4}$  of the length. Valves thin and pellucid, perfectly equal, and clothed with scattered rather strong curved hairs, two of which, issuing from the hind extremity, are particularly elongated; anterior duplicature very broad, posterior wholly absent; marginal zone simple, without any chitinous stripes. Natatory setae of posterior antennae well developed, extending to the tips of the apical claws. Caudal rami slightly curved and nearly of equal width throughout; apical claws subequal and about half the length of the ramus; dorsal seta comparatively small.

Colour not yet ascertained.

Length of adult female 1.10 mm.

*Remarks*.—This is unquestionably the species recorded by G. W. Müller under the above name, agreeing perfectly with the description and figures given by that author. It is closely allied to *I. priomena* of the same author, but of much smaller size, and has the shell con-

spicuously narrower, with the marginal cone quite simple. The form recorded by Brady under the name *Hyalocypris africana* seems to be identical with the present species.

*Occurrence*.—Two female specimens of this form were found in the material collected by Mr. K. H. Barnard from a pond on the Cape Flats.

GEN. 12. ILYOCYPRIS, Brady and Norman.

*Remarks*.—This genus in some particulars differs rather essentially from the other Cypridae, and has indeed by recent authors been regarded as the type of a distinct subfamily, *Ilyocyprinae*. It comprises a rather great number of species from different parts of the world; but some of these are so closely related that their distinction is connected with no small difficulty. One of these species is represented in the Fauna of the Cape Province, and will be briefly described below.

34. ILYOCYPRIS AUSTRALIENSIS, G. O. Sars.

(Plate IX, figs. 18–25.)

*Ilyocypris australiensis*, G. O. Sars. On some Fresh-water Ostracoda and Copepoda raised from dried Australian mud. Chr. Ved. Selsk. Fork. 1889, No. 6, p. 46, pl. ii, figs. 5–8, pl. vi.

*Specific Characters*.—*Female*.—Shell, seen laterally, oblong quadrangular in outline, with the greatest height quite in front and somewhat exceeding half the length, dorsal margin nearly straight and forming above the ocular region a well-marked projecting angle, ventral margin conspicuously sinuated in the middle, anterior extremity broadly rounded, posterior almost transversely truncated; seen dorsally, narrow oblong and slightly constricted in the middle, but without any traces of later protuberances, greatest width somewhat exceeding  $\frac{2}{3}$  of the length and occurring behind the middle. Valves rather opaque and nearly equal, with a well-marked transverse depression near the dorsal face; inner duplicatures not particularly broad. Surface of shell sculptured with rather closely set angular pits, giving it a dull appearance, anterior and posterior edges finely hairy and moreover armed with very small and closely set spinules. Structure of the several appendages resembling that in the type species (*I. gibba*), the natatory setae of the posterior antennae being well developed.

Colour whitish grey.

Length of shell amounting to 0.82 mm.

*Remarks.*—This species was described in the year 1889 by the present author from specimens raised from Australian mud. It is nearly allied to the European species *I. gibba* (Ramdohr), but easily distinguished from it by the absolute absence of the horn-like lateral protuberances on the shell characteristic of that species.

*Occurrence.*—Some few female specimens of this form were found in one of my aquaria prepared with mud from the neighbourhood of Bergvliet.

#### GEN. 13. CYPRIA, Zencker, 1854.

*Remarks.*—This genus was established as early as the year 1854 by Zencker to include the European species *C. ophthalmica* (Jurine), and has been admitted by all subsequent authors. It is indeed a very distinct one, exhibiting some well-marked peculiarities of both sexes. In addition to the type species, some other congeneric forms have been recorded in recent time, one of which is represented in the Fauna of the Cape Province.

#### 35. CYPRIA CAPENSIS, G. O. Sars.

(Plate X, figs. 1–15.)

*Cypria capensis*, G. O. Sars. On some South African Entomostraca raised from dried mud. Chr. Vid. Selsk. Skrifter, 1895, p. 28, pl. v, fig. 1, a–b.

*Syn.* : *Cypria armata*, G. W. Müller.

*Specific Characters—Female.*—Shell much compressed; seen laterally, broadly oval in outline, greatest height behind the middle and about equalling  $\frac{3}{5}$  of the length, dorsal margin as a rule evenly arched, only in some cases exhibiting a slight indication to an angle in front and behind, ventral margin slightly concave in the middle, anterior extremity obliquely rounded, posterior rather broad and obtusely blunted, being somewhat expanded below; seen dorsally, narrow oblong, and tapered in front, anterior extremity more pointed than the posterior. Valves conspicuously unequal, the left one overlapping the right in front by a rather broad hyaline border, as also somewhat below; right valve generally (but not always) armed along the anterior edge and part of the inferior with minute closely set tubercles. Surface of shell smooth and polished, though exhibiting, when seen under a high magnifying power, a very delicate longitudinal striation, only very slight traces of hairs being observable. Structure of the several appendages closely resembling that in the type species.



*Male* rather smaller than female and having the shell somewhat less high. Prehensile palps of maxillipeds rather unequal, the right one being much the larger, with the proximal joint somewhat widening distally and produced at the end inside to a digitiform process, distal joint claw-like and considerably stronger than that of the right, with a distinct dentiform prominence at the base. Ejaculatory tubes rather large and easily observable through the pellucid shell, each only provided with seven very strongly marked chitinous whorls, proximal end bladder-like produced. Copulatory appendages comparatively small, with both lamella drawn out at the end to narrow pointed lappets.

Colour in female light yellowish or orange, with a more or less distinct rosy or purplish tinge, and variegated with irregular patches and dots of a darker hue; that in male rather paler.

Length of shell amounting to 0.75 mm.

*Remarks.*—This species was described, though somewhat imperfectly, by the present author in the year 1895, from specimens raised out of mud from the Knysna swamp. The form recorded by G. W. Müller from the equatorial part of Africa under the name of *C. armata* is undoubtedly the same species.

*Occurrence.*—Numerous specimens of this beautiful little Ostracod developed in one of my aquaria prepared with mud taken from pools on Green Point Common. It was also present in some of the parcels of mud taken by Mr. Orjan Olsen in the neighbourhood of the whaling station at Saldanha Bay; but, curiously enough, no living specimens were obtained from this mud, though other Ostracods developed from it in great abundance.

#### GEN. 14. BRADYCYPRIS, n.

*Generic Characters.*—Shell very tumid and of a short and bulky shape, with the valves conspicuously unequal, the left one being much the larger, right valve provided in front with a well-marked coarsely striated marginal zone. Surface of shell smooth. Natatory setae of the posterior antennae well developed. Maxillary palp slender, with the terminal joint narrow cylindrical in form; masticatory lobes attenuated. Maxillipeds and legs of usual structure. Caudal rami very slender and narrow.

*Remarks.*—This new genus is established to include a peculiar Ostracod recorded by Brady and referred by him to the genus *Cypris*. A closer examination of this Ostracod has, however, proved it to

differ so considerably in the structure of the shell, both from *Cypris* and most other genera, that it, in my opinion, ought more properly to be regarded as the type of a distinct genus. The generic name here proposed alludes to the bulky shape of the shell.\*

36. BRADYCYPRIS INTUMESCENS (Brady).

(Plate X, figs. 16-27.)

*Cypris intumescens*, Brady. Ann. Natal Gov. Museum, vol. i, pt. 2, p. 173, pl. xxix, figs. 1-5.

*Specific Characters—Female*.—Shell, seen laterally, rounded oval or somewhat trigonal in outline, with the greatest height quite in front and exceeding  $\frac{3}{5}$  of the length, dorsal margin boldly arched, forming in front of the middle an almost hump-shaped curvature, whence it declines rather steeply both in front and behind, ventral margin slightly sinuated in the middle, anterior extremity obliquely rounded, posterior obtusely blunted; seen dorsally, broadly ovoid in shape, with the greatest width about equalling  $\frac{3}{5}$  of the length and occurring behind the middle, anterior extremity beak-like produced, posterior obtuse. Valves very unequal, the left one overlapping the right considerably along the anterior extremity, striated marginal area of right valve very conspicuous. Surface of shell smooth, without any more conspicuous sculpturing and clothed on both extremities with delicate hairs. Natatory setae on the posterior antennae reaching nearly to the tips of the apical claws. Caudal rami exceedingly slender and narrow, with the apical claws rather elongate, dorsal and apical setae very small.

*Male* resembling the female in the general shape of the shell, but of rather smaller size. Prehensile palps of maxillipeds somewhat unequal, the terminal joint of the right one being much broader than that of the left one and somewhat boot-shaped. Ejaculatory tubes comparatively large, with numerous chitinous whorls and the proximal end slightly produced. Copulatory appendages with the outer lamella drawn out to a somewhat twisted lappet.

Colour pale yellow, the ripe ova shining through the shell with a bright orange hue.

Length of shell amounting to 1.50 mm.

*Remarks*.—This species, the only one as yet known of the present genus, was described by Brady from a solitary female specimen

\* The form recorded by G. W. Müller as *Cypris radiata* is perhaps referable to the present genus.

obtained at Somkele, Zululand. It may easily be recognised from any of the hitherto known *Cypridae* by the shape and peculiar structure of the shell.

*Occurrence.*—Numerous specimens of this Ostracod developed in some of my aquaria prepared with mud taken by Dr. Purcell from old gravel-pits on the Bergvliet Flats. It also occurred in some of the alcoholic samples sent to me from the South African Museum, and in that taken by Dr. Purcell at Ashton. Almost all the specimens examined by me were of the female sex, only one or two males having as yet come under my notice.

GEN. 15. CYPRETTA, Vávra, 1895.

*Remarks.*—This genus was proposed in the year 1895 by Vávra to include a small Cyprid (*C. tenuicauda*) found at Zanzibar, but was by that author merely regarded as a subgenus of *Cypridopsis*. In recent times, however, several additional species have been detected agreeing perfectly with that originally described, as also with each other, in all essential characters, thus proving this genus to be in reality a very well-defined one. It is chiefly distinguished from *Cypridopsis* by the structure of the caudal rami, which, on the whole, is quite normal; whereas in *Cypridopsis* these rami are reduced to trifling rudiments. Another character by which the present genus is at once recognised is found in the very conspicuous radiating septa dividing the marginal zone of both valves in front.

Three species belonging to this genus will be described below, as represented in the Fauna of the Cape Province.

37. CYPRETTA TURGIDA, G. O. Sars.

(Plate X, figs. 28–33.)

*Cypridopsis turgida*, G. O. Sars. Fresh-water Entomostraca from the neighbourhood of Sydney. Arch. f. Mathem. u. Naturv. f. 1896, p. 62.

*Specific Characters.—Female.*—Shell exceedingly tumid, the width even somewhat exceeding the height; seen laterally, almost semi-circular in outline, greatest height in the middle and about equalling  $\frac{2}{3}$  of the length, dorsal margin boldly arched and declining quite evenly both in front and behind, ventral margin scarcely at all sinuated, both extremities rounded off, the anterior somewhat broader than the posterior; seen dorsally, broadly cordate, slightly narrowed

in front, obtusely rounded behind. Valves nearly equal, both exhibiting anteriorly a rather sharply-defined marginal area crossed by a number of very conspicuous dark-coloured septa; inner duplicatures not very broad. Surface of shell smooth and rather densely hairy. Posterior antennae with the apical claws very slender and elongated; natatory setae well developed, reaching to the tips of the claws. Caudal rami rather small and narrow linear in form; terminal claws very thin and rather unequal in length; apical bristle apparently wanting.

Colour light olivaceous changing to yellowish brown, with indistinctly-marked darker shadows.

Length of shell amounting to 0.90 mm.

*Remarks.*—This form was originally (in the year 1894) described and figured by the present author, but was at that time erroneously identified with *Cypris minna* of King. Having, however, subsequently had an opportunity of examining the true *minna* of King, I proposed (in 1896) for the present form the above specific name. It is easily distinguished from the two other species here described by its very tumid shell and the rather uniform colour.

*Occurrence.*—The present form developed rather abundantly in some of my aquaria prepared with mud taken by Dr. Purcell from a vley on the Cape Flats. All the specimens examined were of the female sex, no males having ever been detected either of this or of any of the other species of the present genus.

*Distribution.*—New Zealand, Australia, Madagascar, China.

### 38. CYPRETTE MINNA (King).

(Plate XI, figs. 1 and 2.)

*Cypris minna*, King. On Australian Entomostraca. Papers and Proc. Roy. Soc. Van Diemen's Land, vol. iii, pt. 1, p. 64, pl. x B.

*Syn.* : *Cypretta costata*, G. W. Müller.

*Specific Characters*—*Female*.—Shell rather tumid; seen laterally, very broad, of a rounded trigonal shape, the greatest height almost attaining the length, dorsal margin strongly arched, forming in the middle an abrupt, almost hump-shaped bend, and declining rather steeply both in front and behind, ventral margin very slightly sinuated in the middle, both extremities rounded off, the anterior somewhat broader than the posterior; seen dorsally, rounded oval, with the greatest width behind the middle. Valves a little unequal, the right one overlapping the left somewhat in the middle of the dorsal



face, as also anteriorly; marginal area of the anterior extremity well defined and having the radial septa rather conspicuous.

Colour light yellowish and variegated with irregular, partly anastomosing patches of a dark green hue.

Length of shell amounting to 0.90 mm.

*Remarks.*—This form was described as early as in the year 1855 by King from Australian specimens, and was subsequently also recorded by Brady. It is easily recognised by its exceedingly high, almost trigonal shell, as also by its rather characteristic colour. The form recorded by G. W. Müller under the name of *C. costata* is unquestionably the same species.

*Occurrence.*—Several specimens of this form developed in one of my aquaria prepared with mud taken by Dr. Purcell in the neighbourhood of Bergvliet.

*Distribution.*—Australia (King); Madagascar (G. W. Müller).

### 39. CYPRETTA GLOBULUS, G. O. Sars.

(Plate XI, figs. 3 and 4.)

*Cypridopsis globulus*, G. O. Sars. On some Fresh-water Ostracoda and Copepoda raised from dried Australian mud. Chr. Ved. Selsk Forh. 1889, p. 53, pl. ii, figs. 9 and 10, pl. vii, figs. 1–11.

*Specific Characters*.—*Female*.—Shell, seen laterally, rounded subtriangular in outline, greatest height somewhat exceeding  $\frac{2}{3}$  of the length, dorsal margin boldly arched and abruptly bent in the middle, ventral margin very slightly sinuated, both extremities obliquely rounded; seen dorsally, very broad, with the greatest width behind the middle and somewhat exceeding the height. Valves nearly equal, marginal area of the anterior extremity well defined and crossed by the usual septa. Surface of shell finely granular and clothed with delicate hairs.

Colour light yellowish, with three rather conspicuous, irregularly flexuous bands of a dark green hue extending down the sides of the valves.

Length of shell scarcely exceeding 0.70 mm.

*Remarks.*—This form was described in the year 1889 by the present author as a species of the genus *Cypridopsis*. It is, however, evidently referable to the present genus, agreeing perfectly in all essential characters with the two preceding species, though being specifically distinct from both of them.

*Occurrence.*—This form only developed in one of my aquaria

prepared with mud from the pond at Bergvliet. Several specimens were however secured, all of them being, as usual, of the female sex.

*Distribution*.—Australia (the present author).

GEN. 16. ZONOCYPRIS, G. W. Müller, 1898.

*Remarks*.—This genus was proposed in the year 1898 by G. W. Müller to comprise three species, one of which had previously been recorded by Vávra, but referred by him to the genus *Cypridopsis*. It agrees with the latter genus in the rudimentary condition of the caudal rami, but differs decidedly in the coarse sculpture of the shell, as also in the structure of the posterior antennae. Two somewhat anomalous species, apparently referable to this genus, will be described in the sequel.

40. ZONOCYPRIS CORDATA, n. sp.

(Plate XI, figs. 5–15.)

*Specific Characters—Female*.—Shell very tumid; seen laterally, rounded trigonal in outline, with the greatest height about in the middle and nearly attaining  $\frac{2}{3}$  of the length, dorsal margin boldly arched, ventral only very slightly sinuated, anterior extremity obliquely rounded, posterior obtusely blunted; seen dorsally, broadly cordiform, with the greatest width far behind and exceeding the height, anterior extremity gradually contracted, posterior broadly rounded off. Valves slightly unequal, the left one overlapping the right somewhat along the anterior extremity, right valve armed, a little within the edge, both in front and behind with a row of minute tubercles; inner duplicatures somewhat broader in front than behind. Surface of shell coarsely sculptured with numerous closely set knob-like tubercles arranged more or less distinctly in concentric rows, and clothed in front and behind with comparatively short and delicate hairs. Anterior antennae, mandibles, maxillipeds, and legs of normal structure. Posterior antennae, however, distinguished by their unusually coarse and compact appearance, penultimate joint very short; apical claws rather unequal, two of them issuing from the penultimate joint remarkably strong and cultriform, the inner one distinctly serrate behind; natatory setae well developed, reaching beyond the apical claws. Maxillary palp with the terminal joint narrow cylindric in form. Caudal rami imperfectly developed, being replaced by two small narrowly produced lappets, each terminating in a thin seta.

Colour dark olivaceous green, more generally with a chestnut brown tinge along the anterior and posterior edges of the shell.

Length of shell amounting to 0.56 mm.

*Remarks.*—The above-described form is easily distinguished from any of the other known species of the present genus, both as to the general shape of the shell and to its sculpture, though agreeing pretty well with them in the structure of the several appendages and more particularly in the characteristic appearance of the posterior antennae.

*Occurrence.*—This form was found in several of my aquaria prepared with mud from different places in the neighbourhood of Cape Town. It did not, however, occur in any considerable number, and was only occasionally taken up by the dipping-tube, its comparatively small size also rendered it rather difficult to detect it. All the specimens examined were of the female sex.

41. *ZONOCYPRIS TUBEROSA*, G. W. Müller.

(Plate XI, figs. 16–25.)

*Zonocypris tuberosa*, G. W. Müller. L.c. p. 167, figs. 1–5 (in text), pl. xix, figs. 1, 5.

*Specific Characters*—*Female*.—Shell far less tumid than in the preceding species; seen laterally, of a rather regular oval reniform shape, with the greatest height somewhat in front of the middle and only slightly exceeding half the length, dorsal margin quite evenly arched throughout, ventral distinctly sinuated, anterior extremity evenly rounded, posterior obtusely blunted; seen dorsally, ovoid in shape, with the greatest width behind and slightly exceeding the height, anterior extremity gradually narrowed, posterior broadly rounded. Valves nearly equal and rather pellucid, with the inner duplicatures comparatively small. Surface of shell densely reticulated and clothed all over with unusually strong, almost spini-form hairs curving as a rule backwards and attached to prominent knob-like tubercles, with which they seem to be movably articulated. Structure of the several appendages on the whole closely agreeing with that in the preceding species.

*Male* of nearly same size as female and resembling it in the general appearance of the shell. Posterior antennae with the apical claws less strongly developed, those issuing from the penultimate joint being scarcely larger than that of the last joint. Prehensile palps of maxillipeds slightly unequal, the claw-like distal joint being rather

broadier on the right than on the left palp, proximal joint in both of them somewhat dilated distally and exerted at the end inside to a triangular lappet. Ejaculatory tubes with about sixteen chitinous whorls, proximal ends slightly funnel-shaped. Copulatory appendages with the outer lamella unequally bilobular at the end, outer lobe broadly rounded, inner narrowly exerted.

Colour bright green, somewhat paler in front.

Length of shell amounting to 0.75 mm.

*Remarks.*—I cannot doubt that the above-described form is identical with that recorded by G. W. Müller, though the hairs of the shell, as represented in the figures given by that author on Plate XIX, appear far less strongly developed than in the specimens examined by me. The outward appearance of the present form looks so very different from that of the preceding species, that it hardly should be assumed that they were congeneric. Yet, on a closer examination, the several appendages are found to be built on the very same type, and I thus fully agree with Müller in referring this form to the genus *Zonocypris*, though the generic name appears less significant of the present species.

*Occurrence.*—Only a few specimens of this peculiar form have as yet come under my notice. They were found in one of my aquaria prepared with mud taken by Dr. Purcell from old gravel-pits on the Bergvliet estate. Two of the specimens secured proved to be of the male sex. G. W. Müller obtained this form from Plumstead.

#### GEN. 17. PARACYPRETTA, n.

*Generic Characters.*—Shell short and tumid, resembling somewhat in shape that in *Cypretta*. Valves however very unequal, the left one projecting far beyond the right at the anterior extremity, right valve exhibiting, somewhat inside the anterior edge, a narrow marginal area crossed by a number of short and thick, strongly chitinated septa. Surface of shell sculptured with closely set longitudinal ridges and rather densely hairy. Posterior antennae comparatively slender, with the penultimate joint rather produced and the apical claws long and narrow; natatory setae well developed. Maxillary palp slender, with the terminal joint cylindric in form. Maxillipeds with the branchial plate imperfectly developed. Caudal rami very narrow, styliform, though armed at the end in the usual manner. Propagation exclusively parthenogenetical.

*Remarks.*—This new genus is established to comprise three well-



defined species which in all essential characters agree with each other, thus forming together a quite natural group. As indicated by the generic name here proposed, it seems to come nearest to *Cypretta*, differing, however, decidedly in the structure of the shell. The form recorded by G. W. Müller under the name of *Cypris syngramma* may perhaps be adduced to this genus.

42. PARACYPRETTA AMPULLACEA, n. sp.

(Plate XII, figs. 1-13.)

*Specific Characters.*—Shell exceedingly broad and expanded, sub-depressed, with the ventral face flattened; seen laterally, almost semilunar in outline, greatest height about in the middle and slightly exceeding  $\frac{2}{3}$  of the length, dorsal margin boldly arched, ventral distinctly sinuated, anterior extremity conspicuously deflexed, forming below a projecting, almost angular expansion, posterior extremity obtusely blunted; seen dorsally, broadly rounded, with the greatest width almost equal to the length and considerably exceeding the height, anterior extremity slightly produced and somewhat twisted to the right side. Valves conspicuously unequal, the right one being almost transversely truncated anteriorly and overlapped here by a semilunar projecting lappet of the left one. Surface of shell sculptured with closely set longitudinal striae partly anastomosing in front and behind, and all over clothed with comparatively short and delicate hairs.

Colour dark olivaceous, with a more or less distinct greenish tinge.

Length of shell about 1 mm.

*Remarks.*—This species may be regarded as the type of the present genus. It is easily distinguished from the other two species here recorded by the exceedingly broad and expanded shell, a character which indeed has given rise to the specific name proposed. On the accompanying plate, figures of the several appendages in the present species have been given for comparison with those of the other genera here treated of.

*Occurrence.*—Numerous specimens of this form were contained in one of the alcoholic samples sent to me from the South African Museum, and taken from a vley on Green Point Common. I have also had an opportunity of examining this form in the living state, some four specimens being raised from dried mud derived from about the same locality.

## 43. PARACYPRETTE RUBRA, n. sp.

(Plate XII, figs. 14 and 15.)

*Specific Characters.*—Shell far less expanded than in the preceding species; seen laterally, of a comparatively short rounded oval shape, with the greatest height somewhat in front of the middle and considerably exceeding  $\frac{2}{3}$  of the length, dorsal margin boldly arched, ventral only slightly sinuated, anterior extremity scarcely expanded below and broader than the posterior; seen dorsally, rounded oval in form, with the greatest width about equalling  $\frac{3}{4}$  of the length, both extremities slightly narrowed. Valves exhibiting a similar very conspicuous unequality in front to those in the preceding species. Surface of shell with the longitudinal ridges very sharply marked and rather more distant than in that species, the hair clothing the shell moreover considerably coarser, some of them attaining a very great length.

Colour rather unusual, the shell exhibiting throughout a bright reddish hue.

Length of shell amounting to 0.90 mm.

*Remarks.*—This form, when examined in the living state, may at once be recognised by its quite unusual colour. It also exhibits some well-marked differences from the other two species in the shape and sculpture of the shell, as indicated in the above diagnosis.

*Occurrence.*—Only some few specimens of this form have as yet come under my notice. They were found in one of my aquaria prepared with mud from a shallow vley on the Bergvliet Flats, and at once attracted my attention by their bright red colour.

## 44. PARACYPRETTE ACANTHIFERA, n. sp.

(Plate XII, figs. 16, 17.)

*Specific Characters.*—Shell rather tumid; seen laterally, of a somewhat similar short oval shape to that in *P. rubra*, greatest height in front of the middle, dorsal margin rather evenly arched and declining somewhat more steeply in front than behind, ventral margin nearly straight, anterior extremity conspicuously deflexed, forming below a somewhat projecting expansion, posterior extremity evenly rounded; seen dorsally, broadly ovate, with the greatest width in the middle and slightly exceeding  $\frac{3}{4}$  of the length, anterior extremity somewhat produced and twisted to the right side. Valves, as in the two preceding species, of a very unequal appearance in their anterior part. Surface

of shell with the longitudinal ridges rather densely crowded, being, moreover, armed in the posterior part with scattered sharply pointed spines intermingled with the usual hairs, some of the latter, as in *P. rubra*, rather coarse and elongated.

Colour dark olivaceous green.

Length of shell amounting to 1·10 mm.

*Remarks.*—The present species may be easily recognised from the two preceding ones by the spinous armature of the shell, this character having indeed given rise to the specific name here proposed. It is also of rather larger size than either of them.

*Occurrence.*—A considerable number of specimens of this form have been obtained, most of them being reared in my aquaria from mud taken in the neighbourhood of Cape Town. All the specimens examined both of this and the two preceding species were of the female sex, and the parthenogenetical nature of them thus ascertained.

#### GEN. 18. PIONOCYPRIS, Brady and Norman, 1896.

*Remarks.*—The type of this genus, proposed by Brady and Norman in 1896, is the well-known European species *Cypris vidua* O. Fr. Müller, which more generally has been included in the genus *Cypridopsis*. Though the genus has not been admitted by recent authors, I think that it ought to be supported, as there are several forms which closely agree with the above-named type species and together with it apparently form a well-defined group. The differences from *Cypridopsis* (proper) are chiefly found in the shape of the shell, and more particularly in the mutual relation of the valves, as also in the colour, the shell being in most cases banded transversely with a dark pigment, as in some species of the genus *Cypretta*.

Three species, referable to the present genus, will be described below, as belonging to the Fauna of the Cape Province.

#### 45. PIONOCYPRIS ASSIMILIS (G. O. Sars).

(Plate XIII, figs. 1–10.)

*Cypridopsis assimilis*, G. O. Sars. On some South African Entomostraca raised from dried mud. Chr. Vid. Selsk. Skriften, 1895, p. 42, pl. vi, fig. 3, *a-b*.

*Specific Characters.*—Shell rather tumid; seen laterally, oblong oval in outline, greatest height in the middle and about equalling  $\frac{3}{5}$  of the length, dorsal margin evenly arched and declining somewhat

more steeply in front than behind, ventral margin slightly sinuated in the middle, anterior extremity obliquely rounded, posterior obtuse; seen dorsally, subovate, greatest width behind the middle and somewhat exceeding  $\frac{2}{3}$  of the length, anterior extremity more pointed than the posterior. Valves slightly unequal, the right one being somewhat overlapped in front by the left, and, moreover, armed along the anterior edge with a row of very small tubercles wanting on the left valve; inner duplicatures considerably broader in front than behind. Surface of shell smooth and rather densely clothed with delicate hairs. Natatory setae of posterior antennae reaching to the tips of the apical claws. Maxillae with both the palp and the masticatory lobes narrowly produced. Maxillipeds with the branchial plate replaced by four or five short setae. Caudal rami very small and rudimentary, each drawn out to a slender bristle.

Colour whitish or pale yellow and variegated with three or four irregular band-like patches of a very dark hue extending across the shell.

Length of shell about 0.70 mm.

*Remarks.*—This form was briefly described by the present author in the year 1895 from specimens raised out of mud from the Knysna swamp, and was at that time referred to the genus *Cypridopsis*. It is nearly allied to the type species, but of somewhat larger size, and differing slightly in the shape of the shell.

*Occurrence.*—Specimens of this form were obtained, besides from the Knysna swamp, also from the vley at Port Elizabeth and from pools near the whaling station at Saldanha Bay.

#### 46. *PIONOCYPRIS INTERMEDIA*, n. sp.

(Plate XIII, figs. 11 and 12.)

*Specific Characters.*—Shell very tumid; seen laterally, of a somewhat trigonal shape, the dorsal margin being very strongly, almost hump-like arched in the middle, ventral margin nearly straight, both extremities obliquely rounded; seen dorsally, broadly oval, with the greatest width about in the middle and fully equalling  $\frac{3}{4}$  of the length, both extremities obtusely pointed. Mutual relation of the valves and structure of the several appendages much as in the preceding species.

Colour whitish, with the transverse dark bands very conspicuous and arranged in a similar manner to that in *P. assimilis*.

Length of shell about 0.60 mm.



*Remarks.*—This form is perhaps still more closely allied to the type species than the preceding one, though scarcely identical with it, differing, as it does, rather conspicuously in the much more strongly arched dorsal face of the shell, as also somewhat in colour.

*Occurrence.*—Some few specimens of this form were found in one of my aquaria prepared with mud taken from pools on the Bergvliet Flats.

47. *PIONOCYPRIS VIDUELLA* (G. O. Sars).

(Plate XIII, figs. 13 and 14.)

*Cypridopsis viduella*, G. O. Sars. L.c. p. 41, pl. vi, fig. 2, *a-b*.

*Specific Characters.*—Shell far less tumid than in the two preceding species; seen laterally, broadly oval in outline, greatest height about in the middle and equalling  $\frac{3}{5}$  of the length, dorsal margin rather evenly arched, ventral nearly straight, both extremities obtusely rounded; seen dorsally, oblong oval, with the greatest width in the middle and not exceeding the height. Structure of shell and appendages as in the two preceding species.

Colour whitish, variegated with dark bluish-green patches and dots not clearly arranged in transverse bands.

Length of shell amounting to 0.63 mm.

*Remarks.*—This form was briefly described by the present author at the same time as *P. assimilis*. It may easily be distinguished from the two preceding species, as also from the typical form, by the far less tumid shell and by its rather different colouring.

*Occurrence.*—The specimens originally examined were raised out of mud taken from the Knysna swamp, and I have not obtained this form from any other locality. It has, however, been recorded by Daday (1913) from Steinkopf and Kamaggas in Little Namaqualand, and two localities in South-West Africa. All the specimens examined by me, both of this and the other two species, were of the female sex.

GEN. 19. *CYPRIDOPSIS*, Brady, 1866.

*Remarks.*—This genus was established as early as the year 1866 by Brady, and was originally intended to comprise all the Cyprids with rudimentary lash-shaped caudal rami, three species being at first recorded by that author. Subsequently many additional forms with similar rudimentary caudal rami were detected, and of these some were retained in the genus *Cypridopsis*, whereas others were separated as types of nearly allied genera. Of such genera two have been

treated of in the preceding pages, viz. *Zonocypris* and *Pionocypris*, and a third genus, *Cyprilla*, will be mentioned farther on. Of the three species originally referred by Brady to *Cypridopsis*, only one, viz. *C. aculeata*, still is left in that genus, the other two being generally separated and referred, the one to the genus *Potamocypris*, the other to *Pionocypris*. Yet, even in the restriction thus established the present genus comprises a great number of species distributed in different parts of the world, and especially on the African continent this genus has turned out to be very abundantly represented. In my account of the Ostracoda of the Third Tanganyika Expedition,\* I have recorded no less than ten species referable to this genus from the great Central African lakes, and a still greater number of additional species will be described in the present treatise as belonging to the Fauna of the Cape Province.

#### 48. CYPRIDOPSIS GREGARIA (G. O. Sars).

(Plate XIII, figs. 15-27.)

*Potamocypris gregaria*, G. O. Sars. L.c. p. 43, pl. v, fig. 4, a-c.

*Syn.*: *Cypridopsis triquetra*, G. W. Müller.

*Specific Characters—Female*.—Shell somewhat compressed; seen laterally, of a rounded subtriangular shape, greatest height in the middle and about equalling  $\frac{2}{3}$  of the length, dorsal margin boldly arched, forming in the middle an almost angular bend and declining somewhat more steeply in front than behind, ventral margin slightly sinuated in the middle, anterior extremity obliquely rounded, posterior obtusely blunted; seen dorsally, oblong ovate, more pointed in front than behind, greatest width about half the length. Valves only slightly unequal, the right one, however, as in the other species of the present genus, somewhat overlapping the left along the anterior extremity, edges of both valves smooth, inner duplicatures comparatively narrow. Surface of shell sculptured with closely set pits and rather densely hairy, but without any traces of spines. Natatory setae of posterior antennae very fully developed, reaching considerably beyond the apical claws. Maxillary palp with the terminal joint narrow cylindric in form, masticatory lobes moderately produced. Maxillipeds with the branchial plate imperfectly developed and only replaced by two short setae. Caudal rami very small, lash-shaped, being drawn out at the end to a slender bristle.

*Male* of somewhat smaller size than female, and having the shell

\* Proc. Zool. Soc. London, 1910, p. 732.

comparatively less high. Spermatie tubes forming dense coils both in the anterior and posterior parts of the valves. Copulatory appendages with a rounded expansion outside, outer lamella rather projecting and terminating in a hook-like incurved point.

Colour dark brownish green.

Length of shell in female amounting to 0.80 mm.

*Remarks.*—This form was described in the year 1895 by the present author, but was at that time erroneously referred to the genus *Potamocypis*. It is, however, a true member of the present genus and closely allied to the type species *C. aculeata*, yet differing from it conspicuously in the absolute absence of any spines or denticles on the shell. The form recorded by G. W. Müller under the name of *C. triquetra* is scarcely different from the present species.

*Occurrence.*—The specimens originally examined were derived from the Knysna swamp. I have subsequently reared this form in great abundance from a parcel of mud taken in the neighbourhood of Bergvliet, as also from mud taken by Mr. Orjan Olsen near the whaling station at Saldanha Bay. In some cases this form seems to propagate in an exclusively parthenogenetic manner, in other cases, however, male specimens are by no means seldom to be found, and I have often witnessed the copulation of the two sexes. In habits it agrees with the other species of this genus, being a rather active swimmer.

49. CYPRIDOPSIS SPINIFERA, n. sp.

(Plate XIV, figs. 1 and 2.)

*Specific Characters—Female.*—Shell, seen laterally, rounded triangular in outline, with the greatest height in the middle and somewhat exceeding  $\frac{2}{3}$  of the length, dorsal margin boldly arched, almost angular in the middle, ventral margin slightly sinuated, anterior extremity evenly rounded at the end, posterior blunted; seen dorsally, oblong ovate, more pointed in front than behind. Valves nearly equal, and exhibiting the granular sculpture very distinctly. Surface of shell armed, in addition to the usual delicate hairs, with a number of sharply pointed spines, some of which, particularly on the posterior part of the shell, are very slender and recurved, a regular row of similar, though somewhat shorter spines being present outside the anterior edge of each valve.

Colour more or less dark green.

Length of shell amounting to 0.80 mm.

*Remarks.*—This species is nearly allied to the preceding one, and

still more perhaps to the type species *C. aculeata*, the shell being, as in the latter form, armed with very conspicuous spines in addition to the hairs. The spines are, however, in the present species much more produced and also less densely crowded.

*Occurrence*.—Numerous specimens of this form were contained in some of the alcoholic samples sent to me from the South African Museum, collected on the Cape Flats by Mr. K. H. Barnard; and I have also succeeded in rearing it rather abundantly in several of my aquaria prepared with mud from different localities in the neighbourhood of Cape Town. Most of the specimens examined were of the female sex.

50. CYPRIDOPSIS ACULEATA (Costa).

(Plate XIV, figs. 3 and 4.)

*Cypris aculeata*, Costa. Fauna del regni di Napoli, p. 11, pl. iii, fig. 5.

*Specific Characters—Female*.—Shell, seen laterally, exhibiting a somewhat similar short triangular shape to that in the two preceding species, the dorsal margin being boldly arched and subangular in the middle, though declining somewhat more steeply behind, without any more obvious curvature at the junction with the hind edges, ventral margin nearly straight, anterior extremity obliquely rounded, posterior evenly obtuse below; seen dorsally, subovate in shape, with the greatest width behind the middle and about half the length. Surface of shell distinctly granular and armed, in addition to the hairs, with numerous comparatively short tooth-like spines very densely crowded on the dorsal and lateral faces, but less conspicuous in front, no regular row of marginal spines being observable.

Colour as a rule dark green, in some instances with a brownish tinge.

Length of shell amounting to 0·65 mm.

*Remarks*.—I am unable to distinguish the above-described form from the well-known European species, though the specimens examined by me were of somewhat larger size and differed a little in colour. The species was recorded as early as the year 1846 by Costa, and was subsequently described as new by Lilljeborg, though with the very same specific name. It is closely allied to the preceding species, differing, however, conspicuously in the much shorter and stouter spines, as also a little in the shape of the shell.

*Occurrence*.—Only a few female specimens of this form have been secured. They were found, together with *C. gregaria*, in



one of my aquaria prepared with mud from a small pool on the Cape Flats.

*Distribution.*—Throughout Europe, Iceland, Central Asia, and North Africa.

51. CYPRIDOPSIS ELIZABETHAE, n. sp.

(Plate XIV, figs. 5 and 6.)

*Specific Characters*—*Female*.—Shell more elongated than in the three preceding species; seen laterally, of a somewhat irregular oval reniform shape, with the greatest height about in the middle and scarcely exceeding  $\frac{3}{5}$  of the length, dorsal margin rather evenly arched and declining more steeply in front than behind, ventral margin distinctly sinuated, anterior extremity obliquely rounded, posterior somewhat deflexed; seen dorsally, oblong ovate in form, with the greatest width behind the middle and not attaining half the length. Surface of shell nearly smooth, without any traces of spines, but rather densely clothed with delicate hairs.

Colour light yellowish green, clouded dorsally with irregular patches of a darker hue.

Length of shell amounting to 0.70 mm.

*Remarks.*—The present species agrees with *C. gregaria* in the absence of any spines on the shell, but differs both from this and the other two species described above by the less high and more reniform shape of the shell, as also by its much paler colour.

*Occurrence.*—This form was reared rather abundantly in some of my aquaria prepared with mud from the neighbourhood of Port Elizabeth, but was not obtained from any other locality. Male specimens were not seldom found among the females, though, as usual, not nearly so abundant as the latter.

52. CYPRIDOPSIS RENIFORMIS, n. sp.

(Plate XIV, figs. 7 and 8.)

*Specific Characters*—*Female*.—Shell, seen laterally, oblong reniform in shape, with the greatest height about in the middle and only slightly exceeding half the length, dorsal margin gently arched, ventral deeply sinuated, anterior extremity obliquely rounded, posterior somewhat deflexed and obtusely blunted at the end; seen dorsally, oblong ovate, with the greatest width behind the middle and not nearly attaining half the length, anterior extremity more pointed

than the posterior. Surface of shell distinctly granular, but sparingly hairy and without any spines.

Colour not yet ascertained.

Length of shell amounting to 0.80 mm.

*Remarks.*—The above-described form may be easily recognised by the pronouncedly reniform shape of the shell, a character which indeed has given rise to the specific name here proposed.

*Occurrence.*—Several specimens of this form, most of them of the female sex, were found in one of the alcoholic samples sent to me from the South African Museum, and taken from a pond at Fishhoek Station. It was not reared in any of my aquaria.

53. *CYPRIDOPSIS CLAVATA*, n. sp.

(Plate XIV, figs. 9 and 10.)

*Specific Characters—Female.*—Shell rather compressed; seen laterally, subclavate in outline, the greatest height occurring rather in front and about equalling  $\frac{2}{3}$  of the length, dorsal margin angularly bent in front of the middle and declining rather steeply in front, much more slowly behind, ventral margin distinctly sinuated in the middle, anterior extremity obliquely rounded, posterior blunted; seen dorsally, narrow oblong in form, with the greatest width not nearly attaining half the length, anterior extremity more pointed than the posterior. Surface of shell without any spines and rather sparingly hairy.

Colour not yet ascertained.

Length of shell amounting to 0.78 mm.

*Remarks.*—This species is nearly allied to the preceding one, but may easily be distinguished by the more compressed shell and its somewhat clavate shape as seen laterally, the specific name here proposed alluding to this character.

*Occurrence.*—Some female specimens of this form were found in another of the alcoholic samples sent to me from the South African Museum, and taken from a dam at Touws River Station, Worcester Division.

54. *CYPRIDOPSIS TONSA*, n. sp.

(Plate XIV, figs. 11 and 12.)

*Specific Characters—Female.*—Shell comparatively more tumid than in the two preceding species; seen laterally, of a very broad somewhat triangular shape, greatest height about in the middle and fully attaining  $\frac{2}{3}$  of the length, dorsal margin boldly arched and rather

steeply declining in front, more slowly behind, ventral margin very slightly sinuated, both extremities somewhat deflexed, the anterior one obliquely rounded, the posterior obtuse; seen dorsally, broadly ovate, with the greatest width behind the middle and considerably exceeding half the length. Surface of shell smooth and almost quite naked, with only very faint traces of hairs.

Colour not yet ascertained.

Length of shell amounting to 0.78 mm.

*Remarks.*—The present species may be easily recognised by the high triangular shape of the shell, as also by the very smooth appearance of its surface, the latter character having given rise to the specific name here proposed.

*Occurrence.*—Only some few female specimens of this form have as yet come under my notice. They were found in an alcoholic sample taken from a pond on Green Point Common.

55. CYPRIDOPSIS OCHRACEA, n. sp.

(Plate XIV, figs. 13 and 14.)

*Specific Characters—Female.*—Shell rather compressed; seen laterally, of an oblong trigonal form, with the greatest height somewhat in front of the middle and not fully attaining  $\frac{2}{3}$  of the length, dorsal margin angularly bent just behind the ocular region and declining rather steeply both in front and behind, ventral margin slightly sinuated, anterior extremity obliquely rounded, posterior somewhat narrowly produced below; seen dorsally, narrow oblong, with the greatest width not nearly attaining half the length. Surface of shell finely granular and only sparingly hairy.

Colour light yellow or ochraceous.

Length of shell amounting to 0.78 mm.

*Remarks.*—The above-described species is easily recognisable from any of the other forms here recorded by the shape of the shell and its unusual colour, which is even retained in specimens for a long time preserved in alcohol.

*Occurrence.*—Numerous specimens of this form were contained in some of the alcoholic samples sent to me from the South African Museum, and taken at Faure on the Cape Flats, near Cape Town. I have also reared it very plentifully in some of my aquaria prepared with mud taken by Mr. Orjan Olsen near the whaling station at Saldanha Bay. Male specimens were by no means seldom, and were often seen in copulation with the females.

## 56. CYPRIDOPSIS HIRSUTA, n. sp.

(Plate XIV, figs. 15 and 16.)

*Specific Characters—Female.*—Shell somewhat tumid; seen laterally, of a rather regular oblong oval shape, greatest height a little in front of the middle and not fully attaining  $\frac{3}{5}$  of the length, dorsal margin gently arched, ventral distinctly sinuated in the middle, anterior extremity rounded off, posterior blunted; seen dorsally, broadly ovate, with the greatest width behind the middle and nearly equalling the height, exterior extremity narrowed, posterior broadly rounded. Surface of shell all over clothed with unusually strong recurved hairs, giving it a pronouncedly hirsute appearance.

Colour not yet ascertained.

Length of shell amounting to 0.80 mm.

*Remarks.*—This species is especially distinguished by the unusually strong development of the hairs clothing the surface of the shell, and the specific name here proposed alludes to that character. It also differs somewhat from the other species in the general shape of the shell.

*Occurrence.*—Only some few female specimens of this have as yet come under my notice. They were found in an alcoholic sample taken by Dr. Purcell at Ashton.

## 57. CYPRIDOPSIS ECHINATA, G. W. Müller.

(Plate XIV, figs. 17 and 18.)

*Cypridopsis echinata*, G. W. Müller. L.c. p. 165, figs. 1–6 (in text).

*Specific Characters—Female.*—Shell moderately tumid; seen laterally, oval subreniform in shape, greatest height somewhat in front of the middle and about equalling  $\frac{3}{5}$  of the length, dorsal margin abruptly bent in the ocular region and only slowly declining behind, ventral margin distinctly sinuated, anterior extremity obliquely rounded, posterior rather broader and blunted at the end; seen dorsally, ovate, with the greatest width behind and scarcely attaining the height. Surface of shell, in addition to the hairs, all over armed with comparatively short and thick curved spines, so densely crowded as partly to conceal the contours of the shell.

Colour dark green.

Length of shell amounting to 0.72 mm.

*Remarks.*—The above-described species is unquestionably identical with that recorded by G. W. Müller. It agrees with *C. spinosa* and



*C. aculeata* in the spinous armature of the shell ; but the spines are comparatively coarser and much more densely crowded. In the shape of the shell it moreover differs conspicuously from both the said species.

*Occurrence.*—Numerous specimens of this form were contained in one of the alcoholic samples sent to me from the South African Museum, and taken in the neighbourhood of Cape Town. It was also reared in my aquaria from the mud kindly forwarded to me from Mr. Hodgson, and derived from a vley at Port Elizabeth. The specimens examined by G. W. Müller were from the same locality, as most of the other forms recorded by him, viz. Plumstead, Cape Peninsula.

58. *CYPRIDOPSIS GLABRATA*, n. sp.

(Plate XV, figs. 1-7.)

*Specific Characters*—*Female*.—Shell comparatively more elongate than in most of the other species ; seen laterally, oblong oval in outline, with the greatest height about in the middle and only slightly exceeding half the length, dorsal margin gently arched, ventral slightly sinuated, both extremities rounded off and nearly equal ; seen dorsally, narrow oblong, with the greatest width not nearly attaining half the length, both extremities obtusely pointed. Surface of shell smooth and polished, wanting the usual densely granular sculpture, and only sparingly hairy.

*Male* of somewhat smaller size than female, with the dorsal face of the shell less vaulted, being, moreover, easily recognisable by the densely coiled spermatie tubes shining through the valves both in their anterior and posterior parts.

Colour dark olivaceous.

Length of shell amounting to 0.87 mm.

*Remarks.*—This is a very distinct and easily recognisable species, differing rather conspicuously from the other known forms, both as to the shape and the structure of the shell. It is, however, a true member of the present genus, as proved by the structure of the several appendages. On the accompanying plate some details of the male are given, viz. the prehensile palps of the maxillipeds, the ejaculatory tube, and the copulatory appendages. The structure of these appendages does not, however, differ materially from that found in other species of the present genus.

*Occurrence.*—This form developed rather abundantly in some of my aquaria prepared with mud taken by Mr. Orjan Olsen from small

dried-up pools near the whaling station at Saldanha Bay. It occurred here, together with two other species of *Cypridopsis*, viz. *C. gregaria* and *C. ochracea*, from which it could at once be distinguished by its more elongated shell and the dark olivaceous colour of the latter. Male specimens were by no means rare, and were often seen in copulation with the females. I have not obtained this species from any other locality.

59. *CYPRIDOPSIS TRIGONELLA*, n. sp.

(Plate XV, figs. 8–11.)

*Specific Characters—Female.*—Shell moderately tumid; seen laterally, short subtriangular in outline, greatest height in the middle and about equalling  $\frac{2}{3}$  of the length, dorsal margin evenly rounded behind, but forming in the middle an abrupt, almost angular bend, ventral margin slightly sinuated, anterior extremity somewhat produced and obliquely rounded at the end, posterior rather broader and somewhat deflexed; seen dorsally, oblong ovate, with the greatest width behind the middle and about equalling half the length, anterior extremity more pointed than the posterior. Surface of shell very smooth and only sparingly hairy; left valve, as in the species of the genus *Pionocypris*, armed along the anterior edge with a row of minute tubercles, but quite smooth behind.

Colour light green, with a more or less distinct orange tinge on the posterior part of the shell, chiefly caused by the translucent ripe ova.

Length of shell scarcely exceeding 0.63 mm.

*Remarks.*—This is one of the smaller species of the genus, and may, moreover, be recognised by the smooth subtrigonal shell and, when examined in the living state, also by its colour.

*Occurrence.*—Specimens of this form have been obtained from several of my aquaria prepared with mud taken in the neighbourhood of Bergvliet. They were all of the female sex.

60. *CYPRIDOPSIS PYRAMIDATA*, n. sp.

(Plate XV, figs. 12 and 13.)

*Specific Characters—Female.*—Shell very high; seen laterally, of an almost pyramidal shape, with the greatest height considerably exceeding  $\frac{2}{3}$  of the length, dorsal margin gibbously projecting in the middle and sloping steeply both in front and behind, ventral margin nearly straight, both extremities somewhat deflexed and rounded off

at the ends ; seen dorsally, oblong ovate in shape, with the greatest width behind the middle and not fully attaining half the length. Surface of shell conspicuously sculptured with closely set pits, but only sparingly hairy.

Colour not yet ascertained.

Length of shell measuring 0.59 mm.

*Remarks.*—This form seems to be nearest related to the above-described species *C. tonsa*, but is of much inferior size, and also differs conspicuously in the shape and sculpture of the shell.

*Occurrence.*—Two female specimens only of this form have as yet come under my notice. They were found in an alcoholic sample taken by Dr. Purcell from a pond at Ashton.

61. *CYPRIDOPSIS STRIOLATA*, n. sp.

(Plate XV, figs. 14–16.)

*Specific Characters*—*Female*.—Shell, seen laterally, oblong reniform in shape, with the greatest height somewhat in front of the middle and only slightly exceeding half the length, dorsal margin somewhat abruptly bent in front, but rather slowly declining behind, ventral margin deeply sinuated, anterior extremity broadly rounded, posterior somewhat obliquely deflexed ; seen dorsally, of the usual oblong ovate shape, with the greatest width about equalling half the length. Surface of shell only sparingly hairy, but sculptured with very delicate, though easily observable longitudinal striae partly anastomosing with each other at both extremities.

Colour dark greenish.

Length of shell measuring 0.54 mm.

*Remarks.*—This form may be at once distinguished from any of the other known species of the present genus by the peculiar sculpture of the shell, a character which indeed has given rise to the specific name here proposed.

*Occurrence.*—Some few female specimens of this form were found in one of my aquaria prepared with mud taken by Dr. Purcell from a pond on the Bergvliet Flats.

62. *CYPRIDOPSIS BREVIS*, n. sp.

(Plate XV, figs. 17 and 18.)

*Specific Characters*—*Female*.—Shell unusually short and stout ; seen laterally, rounded oval in outline, greatest height somewhat behind the middle and nearly attaining  $\frac{2}{3}$  of the length, dorsal margin rather

evenly arched, ventral slightly sinuated, anterior extremity obliquely produced, posterior broadly rounded; seen dorsally, regularly ovate, with the greatest width behind the middle and exceeding half the length. Surface of shell smooth, but rather densely hairy; left valve, as in *C. trigonella*, armed a little inside the anterior edge with a row of minute tubercles.

Colour bright emerald green.

Length of shell scarcely exceeding 0.50 mm.

*Remarks.*—This form is easily recognised from most of the other known species by the comparatively short and stout shape of the shell, resembling in this respect more the species of the genus *Pionocypris*. It is, however, a true *Cypridopsis*, as proved by the mutual relation of the valves.

*Occurrence.*—Two female specimens only of this form have as yet come under my notice. They were found in one of my aquaria prepared with mud taken by Dr. Purcell from a pond on the Bergvliet Flats.

63. *CYPRIDOPSIS TUMIDULA*, n. sp.

(Plate XV, figs. 19–22.)

*Specific Characters*—*Female.*—Shell unusually tumid; seen laterally, broadly oval in outline, greatest height about in the middle and fully attaining  $\frac{2}{3}$  of the length, dorsal margin evenly arched and joining the hind edge without any intervening angle, ventral margin distinctly sinuated in the middle, anterior extremity obliquely rounded, posterior more obtuse and somewhat deflexed; seen dorsally, broadly ovate, with the greatest width behind the middle and almost attaining  $\frac{2}{3}$  of the length, anterior extremity pointed, posterior obtuse. Surface of shell smooth and rather densely hairy in front and behind.

*Male*, as usual, smaller than female, and having the shell comparatively shorter and more dilated in its posterior part. Spermathecae very conspicuous, forming dense coils both in the anterior and posterior parts of the valves. Outer lamella of the copulatory appendages drawn out at the end to a beak-like incurved process.

Colour not yet ascertained.

Length of shell measuring in female 0.58 mm., in male 0.50 mm.

*Remarks.*—This form also exhibits a rather anomalous appearance, though being unquestionably, like the preceding one, a member of the present genus. It is especially distinguished by the unusually tumid shell, a character which indeed has given rise to the specific name here proposed.



*Occurrence.*—On examining closer an alcoholic sample taken from one of my aquaria prepared with mud from the neighbourhood of Port Elizabeth, I found several specimens of this small Ostracod which previously had escaped my attention. Most of the specimens were of the female sex; but also a few males occurred, one of which is figured on the accompanying plate, together with the left copulatory appendage.

64. CYPRIDOPSIS PYGMAEA, n. sp.

(Plate XV, figs. 23 and 24.)

*Specific Characters*—*Female.*—Shell rather compressed; seen laterally oblong oval in outline, greatest height about in the middle and only slightly exceeding half the length, dorsal margin gently arched and declining more steeply in front than behind, ventral margin slightly sinuated, anterior extremity narrowly rounded, posterior somewhat broader and blunted at the end; seen dorsally, narrow oblong, with the greatest width scarcely exceeding  $\frac{2}{3}$  of the length. Surface of shell smooth and rather densely hairy.

Colour not yet ascertained.

Length of shell scarcely exceeding 0.45 mm.

*Remarks.*—This is much the smallest of the species here recorded, and may, moreover, easily be recognised by its comparatively narrow and compressed shell.

*Occurrence.*—Two female specimens only of this form, the one with ripe ova in the body cavity, were picked up from an alcoholic sample taken from one of my aquaria prepared with mud from the Cape Flats, kindly sent to me from Dr. Purcell.

GEN. 20. CYPRILLA, n.

*Generic Characters.*—Shell compressed, and of somewhat different shape in the different species. Valves of rather firm consistency and very conspicuously unequal, the right one being, as a rule, considerably higher than the left, and accordingly overlapping it for some space dorsally, being, however, itself overlapped by that valve both anteriorly and posteriorly. Natatory setae on the posterior antennae in some cases rudimentary, but more generally well developed. Maxillary palp rather strong, with the terminal joint spatulate in form and edged with coarse spiniform setae; masticatory lobes short and thick. Maxillipeds without any branchial plate. Legs normally

developed. Caudal rami rudimentary, resembling in structure those in *Cypridopsis*.

*Remarks.*—The present new genus seems to approach somewhat the genus *Potamocypris* of Brady, but differs in the general appearance of the shell and in the mutual relation of the valves, as also apparently in the sculpture. Five well-defined species of this genus will be described below. They are all of very small size.

65. *CYPRILLA ARCUATA*, n. sp.

(Plate XVI, figs. 1–11.)

*Specific Characters*.—*Female*.—Shell short and stout; seen laterally, almost hemispherical in outline, greatest height about in the middle and nearly attaining  $\frac{2}{3}$  of the length, dorsal margin forming a bold and quite even curve declining almost perpendicularly behind, ventral margin very slightly sinuated, anterior extremity bluntly rounded at the end, posterior drawn out below to a short lobiform corner; seen dorsally, oblong ovate, with the greatest width not fully attaining  $\frac{2}{3}$  of the length. Valves very unlike in shape, the right one being considerably higher than the left, but far less produced at the extremities, and overlapped by it in front by a thin projecting border, behind by the above-mentioned lobiform corner. Surface of shell sculptured with well-marked and rather densely set pits, and clothed at both extremities with delicate hairs. Natatory setae of the posterior antennae very poorly developed, extending scarcely beyond the middle of the penultimate joint.

Colour more or less dark green.

Length of shell scarcely exceeding 0.48 mm.

*Remarks.*—The above-described form may be regarded as the type of the present genus. It is easily recognised by the short and high, almost hemispherical shape of the shell as seen laterally, as also by the imperfect development of the natatory setae on the posterior antennae.

*Occurrence.*—This small Ostracod developed in considerable numbers in some of my aquaria prepared with mud from the neighbourhood of Bergvliet, and was also occasionally found in the alcoholic samples sent to me from the South African Museum. The animal is quite destitute of swimming power, and of course it was only found on the bottom of my aquaria among the loose mud. For obtaining the specimen, it sufficed in many cases to take up by the aid of a dipping-tube a small parcel of the mud and to place it, together with some

water, in a shallow watch-glass for observation. After some time the specimens were seen slowly emerging from the mud and congregating at the lighter side of the watch-glass, where they could be removed easily, and placed under the microscope for examination. By this means I have been enabled to collect a considerable number of specimens, all of them being, however, of the female sex.

66. CYPRILLA GIBBULA, n. sp.

(Plate XVI, figs. 12–15.)

*Specific Characters—Female.*—Shell more compressed than in the preceding species; seen laterally, of a somewhat trigonal or rather semilunar shape, with the greatest height almost attaining  $\frac{2}{3}$  of the length, dorsal margin strongly arched, forming in the middle an abrupt, almost gibbous bend, and declining rather steeply both in front and behind, ventral margin very distinctly concaved, both extremities somewhat deflexed, the anterior one bluntly rounded at the end, the posterior terminating below in a rather projecting corner; seen dorsally, narrow oblong or lanceolate, with the greatest width scarcely exceeding  $\frac{2}{5}$  of the length, anterior extremity more pointed than the posterior. Valves exhibiting a similar very conspicuous unequalness to that in the preceding species. Surface of shell distinctly sculptured with rather large and somewhat distant pits, and clothed at each extremity with delicate hairs. Natatory setae on the posterior antennae well developed, extending to the tips of the apical claws.

Colour pale greenish.

Length of shell measuring 0.48 mm.

*Remarks.*—In its general appearance this form somewhat resembles the preceding one, but may, on a closer examination, be easily distinguished by the gibbously projecting upper face of the shell, the deeply concaved ventral face, and the more produced and deflexed extremities. It also differs in the much more full development of the natatory setae.

*Occurrence.*—This form also was found in several of my aquaria, but not nearly in such abundance as the preceding one. In accordance with the well-developed natatory setae, the animal is enabled to move rather quickly through the water, though more generally keeping to the bottom. Among the specimens obtained only a single male was detected.

## 67. CYPRILLA DEFLEXA, n. sp.

(Plate XVI, figs. 16-22.)

*Specific Characters*.—*Female*.—Shell less compressed than in the preceding species; seen laterally, of a somewhat irregular oval quadrangular shape, greatest height in front of the middle and about equalling  $\frac{3}{5}$  of the length, dorsal margin forming both in front and behind an abrupt bend, its middle part being only slightly arched and obliquely declining behind, ventral margin distinctly concaved, anterior extremity obliquely deflexed and projecting below in a very conspicuous rounded lobe sharply marked off from the inferior edge, posterior extremity almost transversely truncated and expanded below to a somewhat similar lobe to that of the anterior; seen dorsally, oblong ovate, with the greatest width behind the middle and almost attaining half the length. Valves very unequal, the deflexed lobes at both ends of the shell being almost exclusively formed by the left valve, which, on the other hand, is considerably overlapped by the right along the dorsal face. Surface of shell only sparingly hairy, but very coarsely sculptured, being all over covered with densely crowded knots, which give it a very rough appearance. Natatory setae well developed.

*Male* somewhat smaller than female, but resembling it in the general shape of the shell. Prehensile palps of maxillipeds only slightly unequal, proximal joint of both rather narrow and armed near the end inside with a short deflexed spine, distal joint claw-like, and comparatively broader in the right than in the left palp. Ejaculatory tubes each with about sixteen chitinous whorls. Outer lamella of the copulatory appendages comparatively small and narrow, with a short prominence inside the tip.

Colour pale yellowish, with a slight green tinge.

Length of shell measuring in female 0.60 mm., in male 0.56 mm.

*Remarks*.—The present form may be easily distinguished from the two preceding species by the rather different shape of the shell, as also by its very coarse sculpture. The specific name here proposed alludes to the peculiar deflexed lobes occurring at both extremities of the shell and chiefly formed by the right valve.

*Occurrence*.—Several specimens, both males and females, of this distinct species were found in one of my aquaria prepared with mud from the neighbourhood of Port Elizabeth. I have not obtained this form from any other locality.



68. *CYPRILLA HUMILIS*, n. sp.

(Plate XVI, figs. 23 and 24.)

*Specific Characters—Female.*—Shell much compressed; seen laterally, of a somewhat clavate shape, greatest height quite in front and only slightly exceeding half the length, dorsal margin angularly bent in the ocular region and nearly straight in the middle, declining obliquely behind, ventral margin distinctly sinuated, anterior extremity rather broad and obliquely deflexed, terminating below in a broadly rounded expansion, posterior extremity almost transversely truncated and drawn out below to a rounded lobule; seen dorsally, narrow lanceolate in shape, with the greatest width scarcely exceeding  $\frac{1}{3}$  of the length. Valves somewhat less unequal than in the other species, the right one scarcely projecting beyond the left along the dorsal face, but distinctly overlapped by that valve in front and behind. Surface of shell exhibiting a similar sculpture to that in the type species, and clothed in front and behind with delicate hairs.

Colour not yet ascertained.

Length of shell measuring 0.58 mm.

*Remarks.*—This form also is easily recognisable by the shape of the shell, which appears rather unlike that in the other species, its dorsal face being far less vaulted, a character which has given rise to the specific name here proposed.

*Occurrence.*—Only a very restricted number of specimens of this form have as yet come under my notice. They were picked up from an alcoholic sample taken from a dam at Faure on the Cape Flats, and containing multitudes of *Cypridopsis ochracea*. One of the specimens obtained was of the male sex.

69. *CYPRILLA PRODUCTA*, n. sp.

(Plate XVI, figs. 25 and 26.)

*Specific Characters—Female.*—Shell comparatively more elongate than in the other species; seen laterally, oblong semilunar in outline, greatest height in the middle and scarcely exceeding half the length, dorsal margin quite evenly arched throughout, ventral margin distinctly concaved, both extremities deflexed and remarkably produced, the anterior one obtusely blunted at the end, the posterior drawn out to a rather projecting rounded lobe; seen dorsally, lanceolate in shape, with the greatest width scarcely exceeding  $\frac{1}{3}$  of the length. Valves very unequal, the right one projecting considerably beyond

the left along the dorsal face, being, however, overlapped by that valve very distinctly at both extremities. Surface of shell smooth and polished, though, when examined by a high magnifying power, exhibiting a very fine punctation, both extremities clothed with scattered delicate hairs. Natatory setae well developed.

Colour pale yellowish, with a slight green tinge, and clouded dorsally by an irregular dark shadow.

Length of shell amounting to 0.60 mm.

*Remarks.*—This is a very distinct and easily recognisable species, differing conspicuously from the preceding ones, both in the shape of the shell and in its sculpture. It is, however, unquestionably congeneric with them, as proved by the mutual relation of the valves and by the structure of the several appendages.

*Occurrence*—Some specimens of this handsome species, both males and females, were reared in one of my aquaria prepared with mud taken by Mr. J. H. Power at Klipdam, near Kimberley, and kindly forwarded to me from the South African Museum. I have not obtained this form from any other locality.

## FAM. CYTHERIDAE.

### GEN. 21. GOMPHOCYTHERE, n.

*Generic Characters.*—Shell of rather firm consistency, and very unlike in the two sexes, being much larger in female than in male and remarkably swollen in its posterior part, to form a roomy incubatory cavity for the reception of the ripe ova; ventral face of shell in both sexes flattened and defined on each side by a more or less projecting longitudinal ridge. Eye single, median. Antennae, oral parts, and legs built on a similar type to that in *Limnicythere*. Caudal rami however very different and of a rather peculiar structure, forming two juxtaposed thin lamella curving anteriorly, each terminating in a digitiform acutely pointed lappet, at the base of which, outside, a plumosa seta is attached; posterior (dorsal) edge of each lamella divided into three successive short linguiform lobules clothed at the tip with long diverging cilia. Copulatory appendages of male very massive, each terminating in a movable irregularly quadrangular plate.

*Remarks.*—This new genus is somewhat allied to *Limnicythere*, but differs conspicuously in some points both from this and most other Cytheridean genera. Among the most prominent distinguishing

characters may be here noted the very peculiar structure of the caudal rami, and the presence in the female of a roomy incubatory cavity, causing a very conspicuous transformation of the shell in that sex. The generic name here proposed alludes to this latter character. Two well-defined species of this genus will be described below.

70. GOMPHOCYTHERE OBTUSATA (G. O. Sars).

(Plate XVII, figs. 1-16.)

*Limnocythere obtusata*, G. O. Sars. Zool. Results of the Third Tanganyika Expedition. Ostracoda. Proc. Zool. Soc. London, 1910, p. 754, pl. lxxiii, figs. 8-14.

*Specific Characters—Female.*—Shell, seen laterally, regularly oblong quadrangular in outline and nearly equally high throughout, the height scarcely attaining half the length, dorsal margin straight and horizontal, forming both in front and behind a distinct angular bend, frontal angle the more prominent, ventral margin slightly sinuated, anterior extremity broadly rounded, posterior blunted; seen dorsally, of a somewhat irregular ovate shape, considerably bulging behind and exhibiting in front of the middle a well-marked constriction, greatest width almost attaining half the length, anterior extremity narrowed, posterior broadly rounded off. Valves nearly equal and each exhibiting in front a rather broad marginal zone crossed by narrow septa, longitudinal ridges, defining at the sides the ventral face, not very sharply marked. Surface of shell of a dull appearance, being sculptured all over with well marked pits, and provided at both extremities with scattered stiff hairs, most of them arising from small tubercles of the shell. Muscular impressions in the centre of each valve four in number and arranged in a regular vertical series.

*Male* considerably smaller than female and having the shell much more compressed, its posterior part being scarcely at all expanded, longitudinal ridges defining at the sides the ventral face, sharply marked.

Colour not yet ascertained.

Length of shell measuring in female 0.80 mm., in male 0.70 mm.

*Remarks.*—This species was described in the year 1910 by the present author from some female specimens obtained in the great Central African lake, Victoria Nyanza, but was at that time referred to the genus *Limnocythere*. Having, however, now had an opportunity of renewing my investigation of this form in both sexes and, moreover,

of examining another nearly related species, I have convinced myself of its real generic difference. As the present species is that at first described, it ought of course to be regarded as the type of the new genus.

*Occurrence.*—Some specimens of this form were contained in one of the alcoholic samples sent to me from the South African Museum, and taken from a small duck-pond at Salt River, near Cape Town. It was also present rather abundantly in the mud taken by Mr. Orjan Olsen from small pools near the whaling station at Saldanha Bay, and, though the mud had remained dry for rather a long time, in some of the specimens all the limbs were still present within the shell and in such a perfect condition as to admit an exact examination. I did not however succeed in raising either this or the next form in any of my aquaria, apparently because no true resting ova are produced by these Ostracods.

71. *GOMPHOCYTHERE EXPANSA*, n. sp.

(Plate XVII, figs. 17–22.)

*Specific Characters*—*Female.*—Shell much more tumid than in the preceding species; seen laterally, of a somewhat irregular oval quadrangular shape, with the height about half the length, dorsal margin slightly depressed in the middle and forming in front, above the eye, a slight angular bend, whereas behind it joins the posterior edge by a quite even curve, ventral margin scarcely at all sinuated, anterior extremity obliquely rounded, posterior blunted and conspicuously deflexed, forming below a projecting rounded expansion; seen dorsally, very broad, almost pentagonal in outline, with the posterior part very much expanded, the greatest width even exceeding somewhat  $\frac{2}{3}$  of the length, anterior extremity narrowed to an acute point, posterior broadly truncated. Ventral face of the shell flattened and defined on each side by a very sharply marked ridge. Surface of shell distinctly and rather regularly reticulated, and clothed in front and behind with scattered remarkably strong curved hairs arising from projecting tubercles. Structure of the several appendages almost exactly as in the preceding species.

*Male* much smaller than female and having the shell far less tumid, though somewhat less compressed than in the male of the type species.

Colour not yet ascertained.

Length of shell measuring in female 0.77 mm., in male 0.69 mm.

*Remarks.*—The above-described species, though closely allied to the preceding one, is easily distinguishable from it in both sexes.



Especially is the female highly remarkable by its exceedingly tumid and expanded shell, the specific name here proposed alluding to this character.

*Occurrence.*—Some well-preserved specimens of this form were found in one of the alcoholic samples sent to me from the South African Museum, and taken from a pond on the Cape Flats, and, on a closer examination of a parcel of dried mud from about the same region, a considerable number of shells of the same remarkable species were picked out, some of them still containing the several appendages in a condition suitable for an exact examination.

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#### NOTE.

Two species of Ostracoda formerly recorded by the present author as belonging to the Fauna of the Cape Province, are omitted in this paper, viz. *Cyclocypris pusilla* and *Candonocypris candonoides*. The first-named form I suspect is not a true *Cyclocypris*; but as the specimens originally examined unfortunately have been lost, I am unable to determine its real systematic position. As regards the last-named form too, I am now much inclined to believe that it does not at all belong to the African Fauna. True, some specimens of this form were found in one of my aquaria prepared with mud from the Knysna swamp; but these I think were hardly developed from the mud, and might more properly have been accidentally transferred from another aquarium which I had under observation at the very same time. This latter aquarium, which was prepared with Australian mud, abounded with specimens of *Candonocypris*, and as the same dipping-tube was used for taking up proofs of both these aquaria, a transfer of ova or young from the one to the other aquarium might very easily have happened. *Candonocypris candonoides* seems in reality to be a true endemic form, not found, as far as I know, outside the limits of the Australian continent.

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#### ADDENDUM.

##### GEN. 2. PSEUDOCYPRIS, Daday.

*Remarks.*—Two new species, evidently referable to this genus, will be described in the following pages. One of these species is only

represented by a solitary male specimen ; but of the other species a sufficient number of specimens, both females and males, are present, to allow a more complete anatomical examination than was possible with the rather scanty material formerly at my disposal. I have therefore convinced myself on the very close relationship which the present genus exhibits to the genus *Cypris* (gens. strict.). Indeed, I am quite unable to find any essential difference between these two genera, in the structure of the several appendages, as seen by comparing the detail figures given on the accompanying plate, and it thus remains to be decided, if the peculiar character of the shell and the bisexual nature of the species can be regarded as sufficient for supporting the present genus.

72. PSEUDOCYPRIS TRIQUETRA, n. sp.

(Plate XX, figs. 1-15.)

*Specific Characters—Female.*—Shell comparatively short and stout, with the dorsal face strongly vaulted, the ventral flattened, sole-like, and defined on each side by a well-marked, though not much prominent sharp crest, greatest height of the shell somewhat in front of the middle and about equalling  $\frac{3}{5}$  of the length, dorsal margin considerably arched in front, ventral margin almost straight, anterior extremity broadly rounded, posterior somewhat obliquely deflexed and terminating below in an obtuse corner ; seen dorsally, rhomboid in shape, with the greatest width about equalling  $\frac{2}{3}$  of the length, latero-ventral crest only visible in the middle of each valve as a very slight prominence. Surface of shell nearly smooth, with only scattered small pits, and clothed in front and behind with short and delicate hairs. Caudal rami of moderate length and slightly flexuous ; apical claws slender and rather unequal, the larger one almost attaining the length of the ramus.

*Male* of about same size as female and having the shell of a quite similar shape. Spermatie tubes forming dense coils both in the anterior and posterior parts of the valves. Prehensile palps of maxillipeds only slightly unequal, hand expanded at the end inside to a triangular lappet, dactylus abruptly bent and somewhat broader on the right than on the left palp. Copulatory appendages with the outer lamella drawn out inside to a narrow rostriform lappet. Ejaculatory tubes with very numerous densely crowded chitinous whorls.

Colour not yet ascertained.

Length of adult female 2.60 mm.

*Remarks.*—According to the structure of the shell, this form is unquestionably referable to the genus *Pseudocypris* Daday, though the characteristic latero-ventral expansions of the valves are far less prominent than in any of the other species and almost invisible in the dorsal aspect of the shell.

*Occurrence.*—Several specimens of this easily recognisable form were contained in the material received, having been collected at Kimberley by Mr. J. H. Power.

73. *PSEUDOCYPRIS EXPANSA*, n. sp.

(Plate XVIII, figs. 1 and 2.)

*Specific Characters*—*Male.*—Shell, seen laterally, resembling somewhat in shape that of the preceding species, though comparatively rather stouter, with the dorsal margin more evenly arched and the posterior extremity less oblique; seen dorsally, broadly cordate in outline, with the latero-ventral expansion projecting on each side in the middle as broad semilunar lamellae. Structure of the several appendages scarcely differing from that in the preceding species.

Colour not yet ascertained.

Length of adult male 2.90 mm.

*Remarks.*—The present species is closely allied to the preceding one, but of somewhat larger size, and moreover at once distinguished by the much fuller development of the latero-ventral expansions of the valves, giving the shell in the dorsal aspect a rather peculiar appearance.

*Occurrence.*—A solitary male specimen of this form was found in the same tube as the preceding species, from Kimberley.

8. *PSEUDOCYPRIS TESTUDO*, G. O. Sars.

(Plate XVIII, figs. 3 and 4.)

*Remarks.*—The specimens of this remarkable species formerly examined by me were somewhat defective and apparently not fully grown. In the material now received two well-preserved and fully adult female specimens were present, measuring in length no less than 3.50 mm. One of these specimens is figured on the accompanying plate for comparison with the other two species. They were both taken from a pond on the Cape Flats, collected by Mr. K. H. Barnard.

## EXPLANATION OF PLATES.

## PLATE II.

*Eucypris trichota* (G. W. Müller).

FIG.

1. Adult female, viewed from left side.
2. Same, dorsal view.
3. Anterior antenna.
4. Posterior antenna.
5. Anterior lip.
6. Mandible, with palp.
7. Maxilla, with branchial plate.
8. Maxilliped.
9. Anterior leg.
10. Posterior leg.
11. Caudal ramus.

*Eucypris Purcelli*, n. sp.

12. Adult female, seen from left side.
13. Same, dorsal view.
14. Left valve with enclosed animal, somewhat more highly magnified.
15. Right valve, seen from the inner face.

## PLATE III.

*Eucypris producta*, n. sp.

1. Adult female, viewed from left side.
2. Same, dorsal view.

*Eucypris corpulenta*, G. O. Sars.

3. Adult female, viewed from left side.
4. Same, dorsal view.

*Eucypris hirta*, n. sp.

5. Adult female, viewed from left side.
6. Same, dorsal view.

*Eucypris trigona*, G. O. Sars.

7. Adult female, viewed from left side.
8. Same, dorsal view.

*Eucypris capensis* (G. W. Müller).

9. Adult female, viewed from left side.
10. Same, dorsal view.

*Pseudocypris testudo*, n. sp.

11. Adult female, dorsal view.
12. Same, front view.
13. Right valve, seen from the inner face.
14. Posterior antenna.



FIG.

15. Terminal part of maxilla.
16. Anterior leg.
17. Caudal ramus.

PLATE IV.

*Heterocypris incongruens* (Ramdohr).

1. Adult female, viewed from right side.
2. Same, dorsal view.

*Heterocypris aurea*, G. O. Sars.

3. Adult female, viewed from right side.
4. Same, dorsal view.

*Heterocypris capensis* (G. W. Müller).

5. Adult female, viewed from right side.
6. Same, dorsal view.
7. Right valve, seen from the inner face.
8. Adult male, viewed from right side.
9. Anterior antenna.
10. Posterior antenna.
11. Mandible, with palp.
12. Maxilla, with branchial plate.
13. Maxilliped.
14. Anterior leg.
15. Posterior leg.
16. Caudal ramus.
17. Right maxilliped of male.
18. Prehensile palp of left maxilliped
19. Ejaculatory tube.
20. Copulatory appendages.

PLATE V.

*Homocypris conoidea*, n. sp.

1. Adult female, viewed from right side.
2. Same, dorsal view.
3. Adult male, viewed from left side.
4. Posterior antenna.
5. Maxilla, without the branchial lamella.
6. Anterior leg.
7. Caudal ramus.
8. Prehensile palp of right male maxilliped.
9. Palp of left maxilliped.
10. Ejaculatory tube.
11. Left copulatory appendage.

*Cypricercus cuneatus*, G. O. Sars.

12. Adult female, viewed from right side.
13. Same, dorsal view.
14. Adult male, viewed from left side.
15. Palp of right male maxilliped.
16. Palp of left maxilliped.

FIG.

17. Ejaculatory tube.
18. Left copulatory appendage.
19. Caudal ramus.

*Cypricercus episphaena*, G. W. Müller.

20. Adult female, viewed from right side.
21. Same, dorsal view.
22. Posterior antenna.
23. Terminal part of maxilla.
24. Anterior leg.
25. Palp of right male maxilliped.
26. Palp of left maxilliped.
27. Ejaculatory tube.
28. Left copulatory appendage.

## PLATE VI.

*Stenocypris Hodgsoni*, n. sp.

1. Adult female, viewed from left side.
2. Same, dorsal view.
3. Adult male, viewed from right side.
4. Anterior antenna.
5. Posterior antenna.
6. Maxilla, without the branchial plate.
7. Anterior leg.
8. Posterior leg.
9. Palp of left male maxilliped.
10. Palp of right maxilliped.
11. Right copulatory appendage.
12. Caudal rami.

*Stenocypris olivacea*, n. sp.

13. Adult female, viewed from left side.
14. Same, dorsal view.
15. Palp of right male maxilliped.
16. Palp of left maxilliped.
17. Left copulatory appendage.
18. Extremity of left caudal ramus.

*Stenocypris smaragdina*, n. sp.

19. Adult female, viewed from left side.
20. Same, dorsal view.
21. Caudal rami.
22. Right male maxilliped.
23. Palp of left maxilliped.
24. Copulatory appendages, together with left ejaculatory tube.

## PLATE VII.

*Stenocypris pardalis*, n. sp.

1. Adult female, viewed from right side.
2. Same, dorsal view.

*Stenocypris perarmata*, Brady.

FIG.

3. Adult female, viewed from left side.
4. Same, dorsal view.

*Sclerocypris clavularis*, n. sp.

5. Adult female, viewed from right side.
6. Same, dorsal view.
7. Right valve of adult male, viewed from the inner face.
8. Posterior antenna.
9. Anterior lip.
10. Maxilla.
11. Maxilliped.
12. Anterior leg.
13. Posterior leg.
14. Caudal ramus.
15. Palp of male maxilliped.
16. Ejaculatory tube.
17. Copulatory appendages.

*Herpetocypris Chevreuxi*, G. O. Sars.

18. Adult female, viewed from left side.
19. Same, dorsal view.
20. Posterior antenna.
21. Terminal part of maxilla.
22. Caudal ramus.

PLATE VIII.

*Megalocypris d'Urbani* (Baird).

1. Adult female, viewed from left side.
2. Same, dorsal view.
3. Adult male, viewed from right side.
4. Young specimen, seen from left side.
5. Anterior antenna.
6. Posterior antenna.
7. Mandible, with palp.
8. Maxilla, with branchial plate.
9. Maxilliped.
10. Anterior leg.
11. Posterior leg.
12. Caudal ramus.
13. Right male maxilliped.
14. Terminal claw of palp of left maxilliped.
15. Right copulatory appendage.
16. Ejaculatory tube.

*Megalocypris princeps*, G. O. Sars.

17. Adult female, viewed from right side.
18. Same, dorsal view.

## PLATE IX.

*Isocypris nivea*, n. sp.

FIG.

1. Adult female, viewed from left side.
2. Same, dorsal view.
3. Anterior antenna.
4. Posterior antenna.
5. Mandible, with palp.
6. Maxilla, with branchial plate.
7. Maxilliped.
8. Anterior leg.
9. Posterior leg.
10. Caudal ramus.
11. Maxilliped of male.
12. Copulatory appendages.
13. Ejaculatory tube.

*Isocypris priomena*, G. W. Müller.

14. Adult female, viewed from left side.
15. Same, dorsal view.
16. Posterior antenna.
17. Caudal ramus.

*Ilyocypris australiensis*, G. O. Sars.

18. Adult female, viewed from left side.
19. Same, dorsal view.
20. Posterior antenna.
21. Terminal part of maxilla.
22. Maxilliped.
23. Anterior leg.
24. Posterior leg.
25. Caudal ramus.

## PLATE X.

*Cypria capensis*, G. O. Sars.

1. Adult female, viewed from right side.
2. Same, dorsal view.
3. Adult male, viewed from left side.
4. Posterior antenna.
5. Terminal part of same antenna in male.
6. Mandible, with palp.
7. Terminal part of maxilla.
8. Maxilliped.
9. Anterior leg.
10. Posterior leg.
11. Caudal ramus.
12. Palp of right male maxilliped.
13. Palp of left maxilliped.
14. Copulatory appendages.
15. Ejaculatory tube.



*Bradyocypris intumescens* (Brady).

FIG.

16. Adult female, viewed from right side.
17. Same, dorsal view.
18. Posterior antenna.
19. Terminal part of maxilla.
20. Maxilliped.
21. Anterior leg.
22. Posterior leg.
23. Caudal ramus.
24. Palp of right male maxilliped.
25. Palp of left maxilliped.
26. Left copulatory appendage.
27. Ejaculatory tube.

*Cypretta turgida*, G. O. Sars.

28. Adult female, viewed from left side.
29. Same, dorsal view.
30. Posterior antenna.
31. Terminal part of maxilla.
32. Maxilliped.
33. Caudal ramus.

PLATE XI.

*Cypretta minna* (King).

1. Adult female, viewed from left side.
2. Same, dorsal view.

*Cypretta globulus*, G. O. Sars.

3. Adult female, viewed from left side.
4. Same, dorsal view.

*Zonocypris cordata*, n. sp.

5. Adult female, viewed from right side.
6. Same, dorsal view.
7. Left valve, seen from the inner face.
8. Anterior antenna.
9. Posterior antenna.
10. Mandible, with palp.
11. Terminal part of maxilla.
12. Maxilliped.
13. Anterior leg.
14. Posterior leg.
15. Caudal ramus, with adjacent part of body.

*Zonocypris tuberosa*, G. W. Müller.

16. Adult female, dorsal view.
17. Same, viewed from right side.
18. Posterior antenna.
19. Caudal rami.
20. Part of shell, highly magnified, to show the sculpture.

FIG.

21. Terminal part of a posterior antenna in male.
22. Palp of left male maxilliped.
23. Palp of right maxilliped.
24. Ejaculatory tube.
25. Copulatory appendages.

## PLATE XII.

*Paracyprretta ampullacea*, n. sp.

1. Adult female, viewed from right side.
2. Same, dorsal view.
3. Same, front view.
4. Left valve, seen from the inner face.
5. Anterior antenna.
6. Posterior antenna.
7. Anterior and posterior lips, viewed from left side.
8. Mandible, with palp.
9. Maxilla, without the branchial plate.
10. Maxilliped.
11. Anterior leg.
12. Posterior leg.
13. Caudal ramus.

*Paracyprretta rubra*, n. sp.

14. Adult female, viewed from right side.
15. Same, dorsal view.

*Paracyprretta acanthifera*, n. sp.

16. Adult female, viewed from right side.
17. Same, dorsal view.

## PLATE XIII.

*Pionocypris assimilis* (G. O. Sars).

1. Adult female, viewed from right side.
2. Same, dorsal view.
3. Right valve, seen from the inner face.
4. Posterior antenna.
5. Terminal part of maxilla.
6. Maxilliped.
7. Anterior leg.
8. Posterior leg.
9. Caudal rami, dorsal view.
10. Right caudal ramus, seen laterally.

*Pionocypris intermedia*, n. sp.

11. Adult female, viewed from right side.
12. Same, dorsal view.

*Pionocypris viduella* (G. O. Sars).

13. Adult female, viewed from right side.
14. Same, dorsal view.

*Cypridopsis gregaria* (G. O. Sars).

FIG.

15. Adult female, viewed from left side.
16. Same, dorsal view.
17. Adult male, viewed from right side.
18. Posterior antenna.
19. Maxilla, without the branchial plate.
20. Maxilliped.
21. Anterior leg.
22. Posterior leg.
23. Caudal ramus.
24. Palp of right male maxilliped.
25. Palp of left maxilliped.
26. Ejaculatory tube.
27. Copulatory appendages.

PLATE XIV.

*Cypridopsis spinifera*, n. sp.

1. Adult female, viewed from left side.
2. Same, dorsal view.

*Cypridopsis aculeata* (Costa).

3. Adult female, viewed from left side.
4. Same, dorsal view.

*Cypridopsis Elizabethae*, n. sp.

5. Adult female, viewed from left side.
6. Same, dorsal view.

*Cypridopsis reniformis*, n. sp.

7. Adult female, viewed from left side.
8. Same, dorsal view.

*Cypridopsis clavata*, n. sp.

9. Adult female, viewed from left side.
10. Same, dorsal view.

*Cypridopsis tonsa*, n. sp.

11. Adult female, viewed from left side.
12. Same, dorsal view.

*Cypridopsis ochracea*, n. sp.

13. Adult female, viewed from left side.
14. Same, dorsal view.

*Cypridopsis hirsuta*, n. sp.

15. Adult female, viewed from left side.
16. Same, dorsal view.

*Cypridopsis echinata*, G. W. Müller.

17. Adult female, viewed from left side.
18. Same, dorsal view.

## PLATE XV.

*Cypridopsis glabrata*, n. sp.

FIG.

1. Adult female, viewed from left side.
2. Same, dorsal view.
3. Adult male, viewed from right side.
4. Palp of right male maxilliped.
5. Palp of left maxilliped.
6. Copulatory appendages.
7. Ejaculatory tube.

*Cypridopsis trigonella*, n. sp.

8. Adult female, viewed from left side.
9. Same, dorsal view.
10. Anterior part of shell, seen from left side ; more highly magnified.
11. Left valve, seen from the inner face.

*Cypridopsis pyramidata*, n. sp.

12. Adult female, viewed from left side.
13. Same, dorsal view.

*Cypridopsis striolata*, n. sp.

14. Adult female, viewed from left side.
15. Same, dorsal view.
16. Left valve, seen from the inner face.

*Cypridopsis brevis*, n. sp.

17. Adult female, viewed from left side.
18. Same, dorsal view.

*Cypridopsis tumidula*, n. sp.

19. Adult female, viewed from left side.
20. Same, dorsal view.
21. Adult male, viewed from right side.
22. Left copulatory appendage.

*Cypridopsis pygmaea*, n. sp.

23. Adult female, viewed from left side.
24. Same, dorsal view.

## PLATE XVI.

*Cyprilla arcuata*, n. sp.

1. Adult female, viewed from left side.
2. Same, dorsal view.
3. Left valve, seen from the inner face.
4. Right valve, seen from the inner face.
5. Posterior antenna.
6. Mandible, with palp.
7. Maxilla, without the branchial plate.



FIG.

8. Maxilliped.
9. Anterior leg.
10. Posterior leg.
11. Caudal ramus, with adjoining part of body.

*Cyprilla gibbula*, n. sp.

12. Adult female, viewed from left side.
13. Same, dorsal view.
14. Anterior antenna.
15. Terminal part of posterior antenna.

*Cyprilla deflexa*, n. sp.

16. Adult female, viewed from left side.
17. Same, dorsal view.
18. Adult male, viewed from right side.
19. Palp of left male maxilliped.
20. Palp of right maxilliped.
21. Left copulatory appendage.
22. Ejaculatory tube.

*Cyprilla humilis*, n. sp.

23. Adult female, viewed from left side.
24. Same, dorsal view.

*Cyprilla producta*, n. sp.

25. Adult female, viewed from left side.
26. Same, dorsal view.

PLATE XVII.

*Gomphocythere obtusata*, G. O. Sars.

1. Adult female, viewed from left side.
2. Same, dorsal view.
3. Adult male, viewed from right side.
4. Same, ventral view.
5. Right valve of an adult female, with enclosed animal ; left valve removed.
6. Same valve of an adult male, exhibiting the enclosed animal.
7. Anterior antenna.
8. Posterior antenna.
9. Anterior lip, seen from left side.
10. Mandible, with palp.
11. Maxilla, with branchial plate.
12. First leg (maxilliped).
13. Second leg.
14. Third leg.
15. Posterior part of body of a female, with caudal lamella and genital lobe, viewed from left side.
16. Right copulatory appendage of male.

FIG. *Gomphocythere expansa*, n. sp.

17. Adult female, viewed from left side.
18. Same, dorsal view.
19. Same, ventral view.
20. Left valve, seen from the inner face.
21. Adult male, viewed from right side.
22. Same, ventral view.

PLATE XVIII.

*Pseudocypris expansa*, n. sp.

1. Adult male, viewed from left side.
2. Same, dorsal view.

*Pseudocypris testudo*, G. O. Sars.

3. Adult female, viewed from left side.
4. Same, dorsal view.

*Liocypris grandis*, n. sp.

5. Adult female, viewed from left side
6. Same, dorsal view.
7. Posterior antenna.
8. Outer part of maxilla.
9. Maxilliped.
10. Anterior leg.
11. Posterior leg.
12. Caudal ramus.
13. Left genital lobe.
14. Palp of right maxilliped of male.
15. Palp of left maxilliped.
16. Left eopulatory appendage.

PLATE XIX.

*Isocypris perangusta*, G. W. Müller.

1. Adult female, viewed from left side.
2. Same, dorsal view.
3. Anterior marginal zone of a valve, more highly magnified.

*Isocypris priomena*, G. W. Müller.

4. Adult female, viewed from left side.
5. Anterior marginal zone of a valve, more highly magnified.
6. Part of ventral margin behind.
7. Caudal ramus.

*Cypricercus maculatus*, G. W. Müller

8. Adult male, viewed from right side.
9. Same, dorsal view.
10. Right maxilliped.
11. Caudal ramus.
12. Left copulatory appendage.
13. Ejaculatory tube.

*Stenocypris pectinata*, n. sp.

FIG.

14. Adult female, viewed from left side.
15. Same, dorsal view.
16. Posterior corner of right valve, seen from the inner face, more highly magnified.
17. Caudal rami.

*Stenocypris declivis*, n. sp.

18. Adult female, viewed from left side.
19. Same, dorsal view.
20. Caudal rami.

*Stenocypris ametra*, G. W. Müller.

21. Adult female, viewed from left side.
22. Same, dorsal view.
23. Caudal rami.

PLATE XX.

*Pseudocypris triquetra*, n. sp.

1. Adult female, viewed from left side.
2. Same, ventral view.
3. Same, dorsal view.
4. Same, frontal view.
5. Posterior antenna.
6. Anterior and posterior lips, seen from left side.
7. Outer part of maxilla.
8. Maxilliped.
9. Anterior leg.
10. Posterior leg.
11. Caudal ramus.
12. Left maxilliped of male.
13. Palp of right maxilliped.
14. Ejaculatory tube.
15. Copulatory appendages.

*Megalocypris hispida*, n. sp.

16. Adult female, viewed from left side.
17. Same, dorsal view.
18. Posterior antenna.
19. Left maxilliped of male.
20. Palp of right maxilliped.
21. Caudal ramus.
22. Left copulatory appendage.

*Megalocypris tuberculata*, n. sp.

23. Adult female, viewed from left side.
24. Same, dorsal view.
25. Posterior antenna.
26. Palp of left maxilliped in male.
27. Caudal ramus.
28. Left copulatory appendage.

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